REPORT

OF THE

OPERATIONS OF THE ENGINEER DEPARTMENT

OF THE

DISTRICT OF COLUMBIA

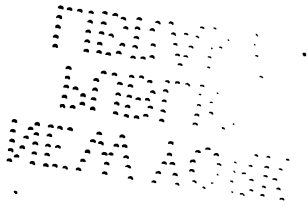
UNDER THE DIRECTION OF THE

ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA,

FOR THE

YEAR ENDING JUNE 30, 1894.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1894.



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EXTRACT FROM THE REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE YEAR ENDING JUNE 30, 1894.

OFFICE OF THE COMMISSIONERS
OF THE DISTRICT OF COLUMBIA,
Washington, December 3, 1894.

The PRESIDENT.

Pursuant to the requirements of the organic law of the District of Columbia, the Commissioners of said District have the honor to report their official doings during the fiscal year ended June 30, 1894, the details of which are set forth in the accompanying exhibits of the officials immediately in charge of the several departments of the District government.

* * * * * * *

WATER DEPARTMENT.

All the pumping during the year was done at the U street station, instead of at two separate stations, with a resulting saving of about $6,000.

The Sixteenth street standpipe was dispensed with and removed.

Nearly 27 miles of water mains were laid, about three-sevenths of which are in Washington.

Contracts were made for the excavation and embankment of the high-service reservoir at Fort Reno, and for furnishing and erecting at the U street station a five-million-gallon pumping engine and two boilers. These works are now in progress. A 12-inch main was laid, about 9 miles long, from the pumping station to the Tennallytown road, on that road from Georgetown to the Reno reservoir, and from the reservoir part way to Brightwood and Takoma.

Pending the completion of the pumping engine and permanent reservoir, a thirty-thousand-gallon concrete tank was constructed at Reno last July, and a small pump erected at the U street pumping station for supplying water along Woodley lane and Tennallytown road.

When the new high-service pumping engine at U street is completed there will be no probability of the need of the Georgetown station by the water department. The building, ground, and plant here, except the pumping engine, may conveniently be made available for an electric street-lighting service for Georgetown and the part of the county west and north whenever it is desired to undertake a municipal service.

Most urgent necessities of the water service are a greater supply of water and the restoring of the water pressures in Washington to what they were in 1890, when the 48-inch main was laid.

The proper means for increasing the water supply is to raise the dam at Great Falls sufficient to keep the water in the distributing reservoir at the height of 146 feet above datum, for which duty the reservoir and conduit leading to it from the falls were built. The top of the intake of the conduit is 3 feet above the sill of the dam, while low water has only a few inches depth on the dam.

The War Department, which has charge of the Washington Aqueduct and its appurtenances, estimates $125,000 for raising the dam. Similar estimates were presented last year, but no funds for the purpose were appropriated.

The Commissioners are of the opinion that it ought now to be definitely determined whether or not the tunnel from the distributing reservoir to the reservoir near the Soldiers' Home can advantageously be made useful. An estimate of $20,000 for testing the tunnel is given in a report of the Chief of Engineers of the Army, June 12, 1890, and published in Senate Ex. Doc. 62, Fifty-second Congress, first session. If this tunnel is not to be used, steps should be taken without delay for providing another principal channel for water distribution.

The raising of the dam and testing of the tunnel belong to the work of increasing the water supply of Washington, which had an available balance, lying idle in the Treasury, June 30, 1894, on account of the suspension of the work, of $427,639.25. A provision for the availability of this balance for raising the dam and testing the tunnel are inserted in the District estimates.

The pending Senate bill for the acquirement by the United States of additional water rights at Great Falls at one half cost to the District is believed to be the most important measure for District interests before Congress.

SEWER DEPARTMENT.

Besides the current work of ordinary extensions of sewers, replacing obstructed sewers, making relief sewers, and cleaning and repairing sewers, the large Easby's Point intercepting sewer from its outlet to Nineteenth and C streets NW., except a short length at the crossing of Twenty-first street, was completed. The suburban trunk sewer from Brightwood avenue and Rock Creek Church road along Spring road and Piney Branch to Rock Creek and a new outlet, about 900 feet long, for the main Anacostia sewer were also constructed.

The section of the Easby's Point sewer named is about one-half in length of the authorized part of this interceptor, and about two-thirds in extent of work. This part, now under contract, will terminate near Pennsylvania avenue and Fifteenth street, and is the only sewer of the adopted plan of 1890 authorized to date. Two appropriations during three years, averaging about $80,000 a year, have been made for the sewer. At this rate, about fifty years will be required for the execution of the adopted plan of sewage disposal and protection of the low portions of Washington from river floods.

STREET LIGHTING.

Lighting with naphtha was substituted for mineral oil. A contract to June 30, 1895, was made for the former at $17 per year for all-night lighting; 800 naphtha lamps are now in operation. The price named was the lowest received for naphtha lighting for a one-year contract, after advertisement required by a provision in the act of March 3, 1893. Bids for oil lighting were rejected.

Three hundred and thirty electric arc lamps, at a price based on 40 cents per night for burning from sunset to sunrise, and 6,209 gas lamps, at $20.50 per year for burning on a moonlight schedule, are maintained.

A considerable increase is asked in the appropriation for street lighting. The existing service is curtailed below actual necessities from lack of funds, both in the number of lamps and time of burning of the gas lamps. Many of the streets are insufficiently lighted; some of the streets, alleys, and principal roads in the county and suburbs are not lighted at all.

In this connection request is made for the enactment of the bill which has passed the House of Representatives increasing the quality and candle power of gas in the District and limiting its price to private consumers and in public buildings to $1 per thousand cubic feet.

STREET AND SIDEWALK PAVEMENTS AND COUNTY ROADS.

The street pavements laid with Bermudez asphalt near the beginning of last fiscal year have not shown any defect, but still appear to be in excellent condition. This asphalt was a new product in Washington. The competition caused by its introduction still obtains. At the last contract letting, the lowest bids for asphalt on 4-inch and 6-inch concrete bases were, respectively, $1.53 and $1.68 per yard. The lowest proposal for sheet asphalt on cobble or macadam base was $1.55½ per yard, and the proposals for asphalt block were $1.78 and $2.25 on gravel and concrete, respectively. The proposals named were accepted and the pavements are now finished or in progress. The prices are considerably decreased below the low prices of the previous year.

No stone pavements were laid. It is believed there will be no further need of new granite-block pavements, and that as the present ones require replacing or extensive repairs, asphalt block or brick can be advantageously substituted. The crushed granite asphalt block furnished during the year appear to be excellent and to make a fairly durable, smooth pavement.

In laying sidewalks on wide residential streets, the tree space is now generally made continuous, instead of leaving open only small rectangular spaces at the curb trees. This change is economical and aids a better growth of the trees.

White flint rock, which is found in the northwestern part of the county, was much more extensively used as a covering on county roads than heretofore. The flint is not so dusty in summer nor muddy in winter as other available broken-stone coverings.

The county roads and unpaved suburban streets are now about 300 miles in length. All repairs on these highways, including cleaning gutters, repairing culverts, and sprinkling, are paid from the appropriation for repairs of county roads. The amount has been inadequate to keep the highways in first-class condition.

PLAN OF EXTENSION OF HIGHWAYS.

Plans of the first section have been approved by the Commissioner and transcribed for record upon thirty-six large scale plates, 20 by 36 inches in size, and embodying the data required by the highway act.

Plans for the other sections have been completed in part. Those of the first section now await a report upon them by Frederick Law Olmsted, landscape architect, whose services for that purpose were engaged in compliance with a requirement in the last District appropriation act. Mr. Olmsted has also been invited to prepare original sketch plans deviating from the Washington street plan, for the rough territory west of Rock Creek.

The first section comprises the northwest part of the county east of Rock Creek and the Rock Creek parks. Sixteenth street, North Capitol street, and Rhode Island avenue are extended without change of direction or width. Other avenues and meridianal streets of the city as they would fall in this section on direct extensions have been changed more or less. In parts of the territory contiguous to the Rock Creek parks curved streets or short diagonal ones have been laid down, but on the whole the plan conforms to the street plan of Washington as nearly as

deemed advisable and practicable; other requirements of the law have been carefully followed.

Prominent features of the plan are the provision for a wide park way along Piney Branch and Spring road from the National Park to the Soldiers' Home, and an extension of this park way by an avenue of 160 feet width from the Soldiers' Home to a proposed park along the upper part of the Eastern Branch. Another wide avenue passing to the north of the Home will connect the upper part of the National Park with the proposed Anacostia Park.

The street plans further contemplate the establishment of a park inclosing Rock Creek from the Zoological Park downstream to Oak Hill Cemetery on the right bank, and to the prolongation of Twenty-fifth street to or near Lyon's Mill on the left bank.

The Commissioners have in view to recommend, when the revenues appear to justify the measure, a widening to 120 feet of Twenty-fifth street and its prolongation to the second crossing of its line of Rock Creek, together with a certain improvement of Rock Creek below Lyon's Mill. Virginia avenue and Twenty-fifth street, in connection with the Piney Branch and Spring road parkway and East Capitol street, and preferably with a return to the L'Enfant plan of the Mall, will furnish a complete circuit of wide driveways, connecting the grand parks of the District.

CONDUITS AND OVERHEAD WIRES.

There was no noticeable extension of conduits for electric wires during the year, the companies doing much work in the way of replacing old poles with new, stronger, and longer poles and substituting copper for iron wires, and generally in making their overhead lines more permanent. Trolley wires and electric lighting wires are the dangerous ones; the former are controlled by existing law and the latter in part. In addition, it is desirable that the police powers of the Commissioners should be extended to give them authority to require the companies to unite their lines on one set of poles and to place the poles in alleys, where practicable, and otherwise fully control the maintenance and erection of the poles for wires allowed by law. Such regulation would result in diminishing the obstruction of streets by poles and wires.

GRADE CROSSINGS OF STEAM RAILROADS.

So far as known, no action was taken by any of the steam railroads in the District toward changing the elevation of its tracks from that of the street or road crossing.

Notwithstanding precautions of fences, gates, watchmen, or signals, accidents continue to occur, by which persons traveling on the public highways are mangled to death by passing trains.

The stoppage by trains of street traffic is a matter of serious inconvenience and loss to the public.

The Commissioners recommend the enactment of a law compelling steam railway companies to change their track crossings from grade levels, in Washington, within two and a half years, and in the county within five years, upon plans subject to the approval of the Commissioners.

Very respectfully,

JOHN W. ROSS,
GEO. TRUESDELL,
CHARLES F. POWELL, *Capt., Corps of Eng'rs, U. S. A.*,
Commissioners of the District of Columbia.

REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT.

REPORT OF CAPT. GEORGE McC. DERBY, CORPS OF ENGINEERS, U. S. ARMY, ASSISTANT TO THE ENGINEER COMMISSIONER OF THE DISTRICT OF COLUMBIA.

OFFICE OF THE ENGINEER COMMISSIONER,
Washington, D. C., November 14, 1894.

SIR: I have the honor to submit the following report upon the operations of the Subsurface Department of the office of the Engineer Commissioner of the District of Columbia for the fiscal year ending June 30, 1894. This department includes the following divisions: Water Distribution, Water Rates, Sewers, Street Lighting, Permits, Inspection of Plumbing, and Inspection of Gas and Meters. Annual reports from the chiefs of these divisions are submitted herewith.

DISTRIBUTION BRANCH OF THE WATER DEPARTMENT.

The total length of water mains laid during the year is 142,047 feet, the largest year's work ever done in the Water Department. The following tables summarize the extent of the distribution system on June 30, 1894. Map 1 shows the location of the mains:

TABLE 1.

New mains laid.	Feet.	New mains laid.	Feet.
20 inches in diameter	278	3 inches in diameter	2,493½
12 inches in diameter	39,348	Connections for fire hydrants	1,938½
6 inches in diameter	84,018	Intersections laid	1,168
4 inches in diameter	12,803½	Mains lowered	688

Valve casings changed to grade	107	New hydrants to replace old ones	37
Valves repaired	70	Hydrants moved to new curb	1
Fire hydrants erected	111	Hydrants repaired	794
Fire hydrants changed to grade	1	New drinking fountains erected	6
Fire hydrants moved	10	Drinking fountains repaired	98
Fire hydrants moved to new curb	4	Services laid to curb	0
Fire hydrants repaired	1,185	Service pipes lowered (number)	41
Taps made	1,499	Service boxes and street washers adjusted to new grade	65
New hydrants erected	16		
Hydrants removed and abandoned	13		

TABLE 2.—*Summary statement of distribution system.*

	In service prior to June 30, 1893.	Added during the fiscal year.	Total June 30, 1894.
	Linear feet.	*Linear feet.*	*Linear feet.*
75 inches diameter	662	.....	662
48 inches diameter	29,736	.....	29,736
36 inches diameter	23,245	.....	23,245
30 inches diameter	36,719	.....	36,719
24 inches diameter	14,659	.....	14,659
20 inches diameter	23,255	278	23,533
16 inches diameter	2,500	.....	2,500
12 inches diameter	94,661	39,386	*134,047
10 inches diameter	12,141	.....	12,141
8 inches diameter	5,925	.....	5,925
6 inches diameter	944,976	‡84,694	1,029,670
4 inches diameter	34,187½	†12,832½	47,019½
3 inches diameter	45,049½	†2,918½	47,968
6 and 4 inch mains to fire hydrants	26,280	1,938½	28,218½
4 inches diameter and smaller	108,030	.....	108,030
Total	1,402,026	142,047½	1,544,073½
	Number.	*Number.*	*Number.*
Stop valves	2,307	325	2,632
Fire hydrants	1,387	111	1,498
Street hydrants	308	16	‡311
Service connections	40,673	1,636	42,309
Taps	53,235	1,499	54,734
Public pumps	255	.....	§216
Horse fountains	56	6	62

* 972 feet abandoned on Sixteenth street on account of laying new 12-inch main.
† Including 397 feet 3 inches, 29 feet 4 inches, and 8 feet 6 inches laid under permit system.
‡ 13 street hydrants have been abandoned.
§ 39 wells have been filled and abandoned.

TABLE 3.—*Statement showing the cost of water mains laid during the fiscal year 1893-'94, and the assessments levied therefor.*

Street.	Streets between.	Size.	Length.	Cost of material.	Cost of labor.	Total cost.	Cost per foot.	Amount of assessment.	Excess of cost over assessment.	Excess of assessment over cost.
		Inches.	*Lin. feet.*							
In alley	Twelfth and Thirteenth, S and T NW	3	84	$17.63	$14.77	$32.40	$0.3857			
Do	Third and Four-and-a-half, E and F SW	3	446	109.58	150.69	260.27	.5836	$12.41	$247.86	
Do	Ninth and Tenth, M and N NW	3	708	136.59	205.88	342.47	.4837	21.46	321.01	
Do	Four-and-a-half and Sixth, C and Maryland avenue SW.	3	497	123.24	135.57	258.81	.5207			
Do	Twelfth and Thirteenth, K and L SE	3	173	37.02	39.80	76.82	.4440	172.93		$96.11
Do	Twenty-first and Twenty-second, D and Virginia avenue NW.	3	58	11.77	26.44	38.21	.6588	34.84	3.77	
Do	First and Second, C and D NE	3	527½	126.99	168.10	295.09	.5590	196.22	98.87	
Do	Thirteenth and Fourteenth, E and Emerson NE.	4	752	191.09	144.15	335.24	.4458	1,076.45		741.21
Do	Thirteenth and Kentucky avenue, C and South Carolina avenue SE.	4	218	53.42	63.70	117.12	.5372			
Do	Twelfth and Thirteenth, B and C SE	4	511	278.66	179.58	458.24	.4431	1,217.97		759.73
Center Walter	do	4	523							
In alley	Eleventh and Twelfth, L and Georgia avenue SE	4	205	58.39	77.43	135.82	.6630			
Do	Sixth and Seventh, F and G NE	4	647	174.76	111.29	286.05	.4421	546.78		260.73
Do	First and Second, N and O SE	4	617	176.73	92.43	269.16	.4362			
Do	Fourth and Fifth, Wilson and Pomeroy NW.	4	341	118.59	80.43	199.02	.5836			
North side M	Sixth and Seventh SE	4	573	193.95	157.29	351.24	.6129	284.51	66.73	
North side O	Third and Four-and-a-half SW	4	620	168.38	150.81	319.19	.5148	1,106.75		787.56
Center Congress	Second and Third, L and M NE	4	282	99.35	75.73	175.08	.6208	232.91		57.83
North and south side California	Eighteenth and Nineteenth NW	4	1,390	343.39	312.48	655.87	.4718	1,687.11		1,031.24
North and south side Vernon	Eighteenth and Nineteenth NW	4	1,206	304.05	315.63	619.68	.5138	1,328.19		708.51
North and south side Quincy	Lincoln and Eckington NE	4	2,361	604.09	525.82	1,129.91	.4786	190.98	938.93	
South side A	Eleventh and Twelfth SE	4	342	132.73	92.12	224.85	.6574	261.35		36.50
Center Quander	First and New Jersey avenue, M and N SE	4	567	148.75	90.81	239.56	.4225	576.35		336.79
Center Thirteen-and-a-half	C and D NW	4	382	175.64	145.53	321.17	.8407	357.85		36.68
South side Rhode Island avenue	Tenth and Eleventh NW	4	338½	109.18	142.57	251.75	.7432	84.14	167.61	
Center Fourth	K and L NE	4	431⅓	106.88	107.29	214.17	.4963	1,378.45		1,164.28
North side K	Eleventh and Twelfth SE	4	348	107.24	105.86	213.10	.6123	124.03	89.07	
In alley	Twenty-first and Twenty-second, D and Virginia avenue NW	4	148	37.43	23.60	61.03	.4123			
Center Third	H and I NE	6	335	138.36	63.18	201.54	.6016	263.32		61.78
Center First	M and N SE	6	643	284.46	204.89	489.35	.7610	748.19		258.84
Center Kalorama	Eighteenth and Nineteenth NW	6	716⅔	349.01	189.86	538.87	.7521	1,803.15		1,264.28
Center Valley	P and Q NW	6	431⅓	216.35	120.90	337.25	.7816	147.25	190.00	
Center Belmont	Eighteenth and Nineteenth NW	6	499	338.39	153.92	492.31	.9866	1,265.27		772.96
Center Columbia avenue	do	6	1,431	668.00	454.89	1,122.89	.7847	2,461.54		1,338.65
Center Seventeenth extended	North of Howard NW	6	218	86.06	55.28	141.34	.6483	738.72		597.38
East side Delaware avenue	K and L SW	6	322½	137.13	79.01	216.14	.6702	83.06	133.08	
Center B	Fourteenth and Kentucky avenue SE	6	845	382.97	191.01	573.98	.6792	1,608.64		1,034.66

TABLE 2.—*Summary statement of distribution system.*

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		Inches.	*Lin. feet.*							
Center Sumner	Sixth and Seventh NW	6	710	$298.94	$222.71	$521.65	$0.7347	$780.05		$258.40
Center Sixth	Lincoln and Sumner									
North side E	New Jersey avenue and Canal SW	6	388	158.23	83.97	242.20	.6242	329.58		87.38
Center R	Thirty-second and Thirty-fifth NW	6	1,154	486.14	357.59	843.73	.7311	1,502.12		658.39
Center L	Eleventh and Twelfth SE	6	258	120.89	57.12	178.01	.6900	220.09		42.08
Center A	Seventh and Eighth NW	6	211½	101.20	81.47	182.67	.8637			
Center T	Second and Fifth NE	6	2,790	1,056.82	943.36	2,000.18	.7169	5,818.78		3,818.60
North and south side T	Fifth and Eckington									
East side Fourteenth	C and D SW									
West side Fourteenth	D and Water SW	6	1,696	701.87	511.59	1,213.46	.7154	2,287.27		1,073.81
Center Thirteenth	Maryland avenue and Water SW									
North side Water	Twelfth and Thirteenth SW									
Center First	N and alley SE	6	317	104.10	69.55	173.65	.5478	569.44		395.79
West side Second	do									
Center Twenty-second	C and D NW	6	944½	428.66	383.50	812.16	.5499	1,123.13		310.97
South side C	Twenty-second and Twenty-third NW									
Center Florida avenue	W and Grant NW	6	569½	218.51	154.92	373.43	.6558	726.51		353.08
Center Sixteenth	Rosedale and Gales NE	6	329	177.28	118.15	295.43	.8980	245.00	$50.43	
Center Le Droit	U and Elm	6	356	180.46	117.26	297.72	.8364	936.77		639.03
West side Elm	Le Droit and Harlwood									
East side Eighteenth	Oregon and T NW	6	36	17.90	18.96	36.86	1.0238	55.60		18.74
North side Lincoln	Sixth and Seventh NW	6	69	57.59	34.71	92.30	1.3376	29.38	62.92	
Center Ontario	Columbia and Poplar									
Center Poplar	Ontario and Summit NW	6	1,392½	526.11	337.70	863.81	.6204	2,855.30		1,991.49
Center Summit	Poplar, west									
Center Lawrence	Eighteenth and Nineteenth NW	6	433	191.54	89.76	281.30	.6496	463.72		182.42
Center Fourteenth	North from Howard NW	6	348	126.40	96.39	222.79	.6402	638.71		415.92
North side Second	B and Canal	6	98½	47.77	36.76	84.53	.8582	841.00		756.47
West side Canal	First and Second SW									
Center Piney Branch road	North from Howard avenue NW	6	231	95.37	66.25	161.62	.6996	1,139.23		977.61
Center Fort Stanton road	Jefferson and Galen, Anacostia	6	185	64.92	79.41	144.33	.7801	242.39		98.06
Center D	Eleventh and Tenth NE	6	320	99.38	91.44	190.82	.5963	361.98		171.16
Center L	Third and Delaware avenue SW	6	163	64.34	62.27	126.61	.7767	36.94	89.67	
East side Third	G and South Carolina avenue SE	6	364	162.19	112.69	274.88	.7552	211.44	63.44	
Center Twenty-fourth	Massachusetts avenue and S NW	6	300	159.60	70.23	229.83	.7661			
Center Moores Lane (2d st)	Elm and Wilson NW	6	286	92.57	107.58	200.15	.6098	549.22		349.07
Center Harrison	Taylor and Fendall, Anacostia	*6	696	300.80	265.73	566.53	.8139			
Center Mount Olivet road	Twelfth and Bladensburg road NE	*6	2,060	750.32	781.67	1,531.99	.7437			
Center Fifteenth	U and V NW	*6	376	125.55	129.86	255.41	.6793			
Center Howard avenue	Sixth and Brightwood NW	*6	290½	95.15	47.59	142.74	.4913			
Center Brightwood avenue	Grant and Whitney NW	6	4,295	1,505.95	304.11	1,810.06	.4214	14,189.26		12,379.20
Center Florida avenue	First and Quincy NW	*12	198	186.98	85.50	272.48	1.3812			
Center Steuben	Brightwood and Sherman NW	12	826	774.38	368.59	1,142.97	1.3837	2,040.52		897.55

Government reservation	Sixth and College, Fourth and Trumbull	12	2,615	2,441.08	1,103.20	3,544.28	1.3553	2,254.03	1,290.25	
Center Trumbull	Fourth to east boundary Le Droit Park									
East boundary Le Droit Park	Trumbull and Albany									
Center Albany	East line Le Droit Park to First NW									
East side Brightwood avenue	Whitney and Rock Creek Church Road	12	1,216	1,124.38	610.41	1,734.79	1.4266	3,374.46		1,639.67
South side East Capitol	Kentucky and Massachusetts avenues	12	207	253.34	137.13	390.47	1.8863	135.28	255.19	
South side Massachusetts avenue.	East Capitol and B SE									
North side R	Twenty-third and Twenty-fourth NW	12	792	624.41	330.35	954.76	1.2055	1,497.06		542.30
North side Massachusetts avenue.	do									
Center Brightwood avenue	Flint and Aspen NW	*12	5,699	5,736.78	2,275.67	8,012.45	1.4059			
South side M	Sixteenth and Eighteenth									
East side Eighteenth	M to Cincinnati									
Center Cincinnati	Eighteenth and Connecticut avenue	*12	13,162	13,763.26	6,293.91	20,057.17	1.5239			
Center Connecticut avenue	Cincinnati and Hartford									
Center Hartford	Connecticut avenue to Woodley road									
Center Woodley road	Hartford to Wisconsin avenue									
Center Wisconsin avenue	Madison to Belt road	*12	14,633	13,910.17	5,082.83	18,993.00	1.2938			
Center Belt road	Wisconsin avenue to Birney	6	47							
Center Birney	Belt road to De Russey									
Center Birney	De Russey to Mansfield	*20	278	569.91	364.53	934.44	3.3612			
Center Mansfield	Birney to Hancock									
	INTERSECTIONS.									
In alley	M and N, Second and Delaware avenue SW	3	28	22.10	30.58	52.68				
	Massachusetts and Florida avenue NW	6	53	39.57	61.41	100.98				
	Twenty-eighth and P NW									
	Twenty-ninth and P NW	6	52	167.72	78.06	245.78				
	Thirtieth and P NW									
	Thirty-first and P NW									
	Thirteenth and E SE	6	89	60.21	30.34	90.55				
Center B	Fourteenth and Kentucky avenue SE	6	12	4.34	3.75	8.09				
	Second and C NE	6	24	10.65	29.81	40.46				
	Second and F NE	6	45	25.74	18.77	44.51				
	North Capitol and O	6	120	49.52	33.70	83.22				
	Fifteenth and V NW	6	72	35.01	43.24	78.25				
	Twenty-ninth and M NW	6	13	64.00	86.32	150.32				
	Twenty-ninth and O NW									
	Thirty-third and N NW									
	Thirty-third and O NW									
	N, between Thirty-second and Thirty-fourth NW.	6	63	178.28	140.83	319.11				
	Thirty-second and N NW									

* Fire hydrants not erected.

TABLE 3.—*Statement showing the cost of water mains laid during the fiscal year 1893–'94, and the assessments levied therefor*—Continued.

Street.	Streets between.	Size.	Length.	Cost of material.	Cost of labor.	Total cost.	Cost per foot.	Amount of assessment.	Excess of cost over assessment.	Excess of assessment over cost.
		Inches.	*Lin. feet.*							
Center Sumner	Sixth and Seventh NW	6	710	$298.94	$222.71	$521.65	$0.7347	$780.05		$258.40
Center Sixth	Lincoln and Sumner									
North side E	New Jersey avenue and Canal SW	6	388	158.23	83.97	242.20	.6242	329.58		87.38
Center R	Thirty-second and Thirty-fifth NW	6	1,154	486.14	357.59	843.73	.7311	1,502.12		658.39
Center L	Eleventh and Twelfth SE	6	258	120.89	57.12	178.01	.6900	220.09		42.08
Center A	Seventh and Eighth NW	6	211½	101.20	81.47	182.67	.8637			
Center T	Second and Fifth NE	6	2,790	1,056.82	943.36	2,000.18	.7169	5,818.78		3,818.60
North and south side T	Fifth and Eckington									
East side Fourteenth	C and D SW	6	1,696	701.87	511.59	1,213.46	.7154	2,287.27		1,073.81
West side Fourteenth	D and Water SW									
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Center Twenty-second	C and D NW	6	944½	428.66	383.50	812.16	.5499	1,123.13		310.97
South side C	Twenty-second and Twenty-third NW									
Center Florida avenue	W and Grant NW	6	569½	218.51	154.92	373.43	.6558	726.51		353.08
Center Sixteenth	Rosedale and Gales NE	6	329	177.28	118.15	295.43	.8980	245.00	$50.43	
Center Le Droit	U and Elm	6	356	180.46	117.26	297.72	.8364	936.77		639.03
West side Elm	Le Droit and Harlwood									
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Center Summit	Poplar, west									
Center Lawrence	Eighteenth and Nineteenth NW	6	433	191.54	89.76	281.30	.6496	463.72		182.42
Center Fourteenth	North from Howard NW	6	348	126.40	96.39	222.79	.6402	638.71		415.92
North side Second	B and Canal	6	98½	47.77	36.76	84.53	.8582	841.00		756.47
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Center L	Third and Delaware avenue SW	6	163	64.34	62.27	126.61	.7767	36.94	89.67	
East side Third	G and South Carolina avenue SE	6	364	162.19	112.69	274.88	.7552	211.44	63.44	
Center Twenty-fourth	Massachusetts avenue and S NW	6	300	159.60	70.23	229.83	.7661			
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Center Harrison	Taylor and Fendall, Anacostia	*6	696	300.80	265.73	566.53	.8139			
Center Mount Olivet road	Twelfth and Bladensburg road NE	*6	2,060	750.32	781.67	1,531.99	.7437			
Center Fifteenth	U and V NW	*6	376	125.55	129.86	255.41	.6793			
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Center Brightwood avenue	Grant and Whitney NW	6	4,295	1,505.95	304.11	1,810.06	.4214	14,189.26		12,379.20
Center Florida avenue	First and Quincy NW	*12	198	186.98	85.50	272.48	1.3812			
Center Steuben	Brightwood and Sherman NW	12	826	774.38	368.59	1,142.97	1.3837	2,040.52		897.55

Government reservation	Sixth and College, Fourth and Trumbull									
Center Trumbull	Fourth to east boundary Le Droit Park	12	2,615	2,441.02	1,103.20	3,544.28	1.3553	2,254.03	1,290.25	
East boundary Le Droit Park	Trumbull and Albany									
Center Albany	East line Le Droit Park to First NW									
East side Brightwood avenue	Whitney and Rock Creek Church Road	12	1,216	1,124.38	610.41	1,734.79	1.4266	8,374.46		1,639.67
South side East Capitol	Kentucky and Massachusetts avenues	12	207	253.34	137.13	390.47	1.8863	135.28	255.19	
South side Massachusetts avenue.	East Capitol and B SE									
North side R	Twenty-third and Twenty-fourth NW	12	792	624.41	330.35	954.76	1.2055	1,497.06		542.30
North side Massachusetts avenue.	do									
Center Brightwood avenue	Flint and Aspen NW	*12	5,699	5,736.78	2,275.67	8,012.45	1.4059			
South side M	Sixteenth and Eighteenth									
East side Eighteenth	M to Cincinnati									
Center Cincinnati	Eighteenth and Connecticut avenue	*12	13,162	13,763.26	6,293.91	20,057.17	1.5239			
Center Connecticut avenue	Cincinnati and Hartford									
Center Hartford	Connecticut avenue to Woodley road									
Center Woodley road	Hartford to Wisconsin avenue									
Center Wisconsin avenue	Madison to Belt road	*12	14,633	13,910.17	5,082.83	18,993.00	1.2938			
Center Belt road	Wisconsin avenue to Birney									
Center Birney	Belt road to De Russey	6	47							
Center Birney	De Russey to Mansfield	*20	278	569.91	364.53	934.44	3.3612			
Center Mansfield	Birney to Hancock									
	INTERSECTIONS.									
In alley	M and N, Second and Delaware avenue SW	3	28	22.10	30.58	52.68				
	Massachusetts and Florida avenue NW	6	53	39.57	61.41	100.98				
	Twenty-eighth and P NW									
	Twenty-ninth and P NW									
	Thirtieth and P NW	6	52	167.72	78.06	245.78				
	Thirty-first and P NW									
	Thirteenth and E SE	6	89	60.21	30.34	90.55				
Center B	Fourteenth and Kentucky avenue SE	6	12	4.34	3.75	8.09				
	Second and C NE	6	24	10.65	29.81	40.46				
	Second and F NE	6	45	25.74	18.77	44.51				
	North Capitol and O	6	120	49.52	33.70	83.22				
	Fifteenth and V NW	6	72	35.01	43.24	78.25				
	Twenty-ninth and M NW	6	13	64.00	86.32	150.32				
	Twenty-ninth and O NW									
	Thirty-third and N NW									
	Thirty-third and O NW									
	N, between Thirty-second and Thirty-fourth NW.	6	63	178.28	140.83	319.11				
	Thirty-second and N NW									

* Fire hydrants not erected.

TABLE 3.—*Statement showing the cost of water mains laid during the fiscal year 1893-'94, and the assessments levied therefor*—Continued.

Street.	Streets between.	Size.	Length.	Cost of material.	Cost of labor.	Total cost.	Cost per foot.	Amount of assessment.	Excess of cost over assessment.	Excess of assessment over cost.
		Inches.	*Lin feet.*							
Center R	Brightwood and Howard NW									
	Brightwood and Sumner NW									
	Brightwood and Bismarck NW	6	125	$275.70	$113.36	$389.06				
	Brightwood and Lincoln NW									
	Sixteenth and Morris NW	12	38	47.22	28.76	75.98				
				82,437.03	44,162.52	126,599.55		$150,073.76	$8,596.88	$86,919.75
Cost of erecting fire hydrants:										
Material				6,138.64		6,138.64				
Labor, including repairs to cuts in improved pavements					1,884.01	1,884.01				
Total						8,022.65				
Cost of laying mains, intersections, and connections, including repairs to cuts in improved pavements				82,437.03	44,162.52	126,599.55				
Total						134,622.20				
Total assessment levied in consequence of laying mains						150,073.76				
Total cost of laying mains, intersections, and erecting fire hydrants						134,622.20				
Excess of assessment over cost						15,451.56				

* Fire hydrants not erected.

TABLE 4.—*Statement of the length and cost of water mains laid from July 1, 1878, to June 30, 1894.*

Fiscal year.	36-inch.	24-inch.	20-inch.	16-inch.	12-inch.	10-inch.	8-inch.	6-inch.	4-inch.	3-inch.	Total.	Cost.
	Lin. ft.	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	
1878	39½	.....	.....	.....	3,719	.....	.....	12,781	50	.....	16,641½	$14,846.20
1879	.....	.....	.....	.....	7,409	.....	.....	8,546	1,397	.....	17,352	19,436.03
1880	.....	.....	.....	.....	.....	.....	.....	[1]3,024	.....	.....	3,024	.....
1881	.....	.....	.....	.....	.....	.....	.....	3,709	.....	.....	3,709	3,110.70
1882	.....	.....	.....	.....	.....	.....	.....	1,920	.....	.....	1,920	1,626.43
1883	.....	.....	.....	.....	1,625	.....	26	4,084	.....	.....	5,735	8,073.70
1884	.....	.....	.....	.....	1,038	.....	.....	8,972	.....	.....	10,010	10,492.51
1885	.....	.....	.....	.....	963	.....	.....	27,766	358	485	29,572	25,865.35
1886	.....	.....	.....	.....	1,938	791	.....	35,192	.....	6,623	44,544	40,025.10
1887	.....	.....	[2]4,835	.....	[3]1,124	[4]2,998	.....	[5]30,041	[6]292	7,124	46,414	56,951.00
1888	.....	.....	.....	.....	731	.....	.....	9,123	[7]9,118	[8]3,937	22,939	17,626.63
1889	.....	2,312	5,140	.....	5,626	2,784	.....	36,712	6,571	8,753	67,928	79,342.16
1890	.....	.....	.....	.....	.....	.....	.....	[1]34,737	[2]2,856	2,855	40,448	19,113.54
1891	.....	.....	.....	.....	[5]5,201	.....	.....	56,893	[3]3,142	[5]11,013	76,249	49,702.65
1892	.....	.....	2,926	2,500	[6]10,163	.....	.....	[7]88,709½	[7]3,342	1,286	108,926½	71,733.04
1893	.....	.....	.....	.....	6,473	.....	.....	[8]54,179½	[8]8,836½	[8]3,458½	72,941½	56,339.39
1894	.....	.....	278	.....	39,386	.....	.....	[9]86,632½	[9]12,832¼	[9]2,918½	142,047¾	126,590.55
Total	39½	2,312	13,179	2,500	85,396	6,573	26	503,045½	48,801¼	48,453	710,400¾	600,883.98

[1] Laid on Road street, Georgetown, to replace old cement pipe.
[2] Cost of laying intersections not included herein.
[3] 1,074 feet laid to U. S. Library site; cost not included herein.
[4] 12,366 feet laid under permit system; cost not included herein.
[5] 5,576 feet laid under permit system; cost not included herein.
[6] 26,574 feet laid under permit system; cost not included herein.
[7] 730 feet laid under permit system; cost not included herein.
[8] 434 feet laid under permit system, and 1,968½ feet used for connections for fire hydrants; cost not included herein.

For the work of this department the materials used were in general obtained by contract, and mains were laid by hired labor.

The following table shows the average cost per foot of the mains laid during the year:

TABLE 5.—*Average cost per foot for laying mains of different sizes.*

Size.	Linear feet.	Cost of material.	Cost of labor.	Total cost.
3-inch	2,463½	$0.2215	$0.2150	$0.4365
4-inch	12,803¼	.2773	.2195	.4968
6-inch	84,402	.4471	.2571	.7042
12-inch	39,348	.9863	.4128	1.3981
20-inch	278	2.0509	1.3112	3.3612

The above table does not include the cost of relaying pavements; brick and cobble pavements have been relaid by the water department; the other kinds by the surface department.

Average cost per foot for relaying pavements.

Size.	Brick.		Cobble.		Belgian.	
	Linear feet.	Cost.	Linear feet.	Cost.	Linear feet.	Cost.
		Cents.		*Cents.*		*Cents.*
3-inch			2,084	7.72		
4-inch	99	21.97	1,004	6.47		
6-inch	2,961	8.74	1,609	11.69	719	49.90
12-inch	12	27.09	50	57.5		

Size.	Asphalt blocks.		Trap rock.		Sheet asphalt.	
	Linear feet.	Cost.	Linear feet.	Cost.	Linear feet.	Cost.
		Cents.		*Cents.*		*Cents.*
3-inch	14	50.57	25	19.56	71	58.97
4-inch	10	23.8			137	89.46
6-inch	326	15.35	40	14.37	1,751	39.05
12-inch	43	35.07				

HIGH SERVICE.

The distributing reservoir of the low-service system has a water level of 146 feet above mean high water, and gives a fair service, when the mains are not overtaxed, to localities situated at a level of 100 feet or less above datum. Much of Georgetown, a small portion of Washington, and the greater part of the remainder of the District of Columbia lie above the level of 100 feet above datum, and for these areas the water supply has to be pumped.

The following table shows the average amount of water pumped daily for the high service during the fiscal year 1893–'94:

Average daily consumption.

	Gallons.		Gallons.
July, 1893	2,104,800	January, 1894	2,042,349
August, 1893	2,375,133	February, 1894	2,086,131
September, 1893	2,438,044	March, 1894	2,007,675
October, 1893	2,307,894	April, 1894	2,035,104
November, 1893	2,102,139	May, 1894	2,216,797
December, 1893	2,057,326	June, 1894	2,577,429

Until recently two pumping stations have been maintained—one in Georgetown, pumping to a level of 218.5 feet in a reservoir at U and Thirty-second streets, and one at U street, between Sixteenth and Seventeenth streets NW., pumping to a level of 236.6 feet in a standpipe at Sixteenth and Morris streets. Toward the close of the last fiscal year these two systems were connected by a short length of 12-inch main, and all the pumping has since been done at the U-street station with a saving of about $6,000 per annum in wages and fuel. The Sixteenth-street standpipe has been dispensed with and removed, and the average pressure in the mains has been increased 2 feet in Georgetown and 14 feet in the Washington high service.

The act of March 3, 1893, appropriates, for extending the high-service system of water distribution, so much as may be available in the water fund after providing for the other expenditures authorized by Congress in the same act. The First Comptroller has reported to the Commissioners that this available balance amounted to $205,545.69

on June 30, 1893. By the books of the water department this balance should be $249,448.14; the apparent discrepancy is believed to be due to difference in methods of keeping the books; several attempts have been made during the year to get this apparent discrepancy adjusted, but so far without success.

Under this appropriation and in pursuance of an act approved September 12, 1893, a site for a reservoir has been purchased at Fort Reno, and contract has been made for the excavation and embankment to be completed December 15, 1894; contract has been made for a 5,000,000-gallon pumping engine, to be erected at the U street pumping station, to be completed January 5, 1895; a 12-inch main has been laid from the pump house to the Tennallytown road by way of Woodley lane, and on the Tennallytown road from Georgetown to the Reno reservoir. Another 12-inch main has been laid in part from the reservoir to Takoma, by way of Brightwood. The completion of this main has been delayed, the works of the contractor for the pipe having been destroyed by fire; these works have now been rebuilt and the contractor has resumed deliveries.

Pending the completion of the reservoir and pumping engine, a tank was constructed at Fort Reno with a capacity of 30,000 gallons, and a small Knowles pump, having a capacity of about 100,000 gallons per diem, which was kindly loaned to the water department by the Architect of the Capitol, was put in operation July, 1894, supplying all the water necessary at present, about 50,000 gallons per diem, on the line of Woodley lane and Tennallytown road. In the early spring the concrete lining will be put in the Fort Reno reservoir, and it will be available for use by June, 1895. The 12-inch main from Reno to Takoma will also have been completed by that date, when the whole upper service system can be put in operation; 47,625 feet of mains have been laid for this system during the year.

On account of the great variation in the elevation of the different parts of the District of Columbia the high service system of water distribution has been divided into an upper and middle service. The upper service embraces those areas of the District which lie above the level of 200 feet above datum. For this service, which covers a wide area which is now, and probably will be for many years, but sparsely settled, the supply is pumped to a level of 420 feet above datum. The Fort Reno reservoir, with a capacity of 4,200,000 gallons, and the 5,000,000-gallon pumping engine now under construction, will probably meet all the requirements of this service for many years to come. The middle service includes the area lying between the levels of 100 feet and 200 feet above datum, which is probably destined in the near future to be closely built up and occupied by a very dense population.

This area is now served by two 2,500,000-gallon pumps, pumping into the Georgetown high service reservoir. This service is now rapidly expanding; the system has at this date (November 14, 1894) been extended to include Eckington and Brookland, and it now consists of 27,520 feet of 12-inch mains; 4,130 feet of 10-inch mains; 118,580 feet of 6-inch mains; 10,660 feet of 4-inch mains.

The most urgent needs of this service at present are the construction of a distributing reservoir, the laying of a 24-inch supply main from the pump house to the reservoir, and the completion of the line of 12-inch pipe from Thirteenth street NW. to Brookland. The reservoir should be located at some point on the ridge behind the Soldiers' Home, at an elevation of about 260 feet, where it can feed to equal advantage toward

Mount Pleasant and Georgetown on one side, and Brookland, Eckington, and remoter suburbs on the other.

The 24-inch main can be laid this year from the pump house out Thirteenth street as far as Spring road; but it can go no farther at present, as the streets have not yet been dedicated, and it is not so urgently needed as to justify paying for the right of way along the proposed extension of Thirteenth street and Kansas avenue to the Blair road, particularly as, under existing law, no assessment could be levied to pay for it if laid on a right of way. For the same reason the 12-inch main to supply Brookland can not advantageously be finished now. The exact location of the reservoir has not been determined upon either, for the same reason; negotiations have been in progress throughout the year looking to the purchase of a suitable site, but no proposition has been received that was believed to be advantageous, and it has not been thought advisable to begin condemnation proceedings until the street-extension plans have been finally adopted. In the meantime work can proceed at once on the construction of the pump house, on laying the 24-inch main where the streets are already dedicated, and in laying the 6-inch distributing mains applied for by residents.

During the month of October, 1894, the average daily consumption of water for the middle service had risen to 3,278,000 gallons; it is apparent that, if this rate of increase continues, the capacity of the two 2,500,000-gallon Gaskill pumps will soon be exceeded. On the other hand, for some years to come, the capacity of the new upper service pump will greatly exceed the requirements of the service; it is probable, therefore, that when the Gaskill pumps begin to show signs of being overtaxed, it may be advantageous to help them out by drawing on the upper service system for some of the water required for the middle service, instead of proceeding at once to put in a larger pump in place of one of the old ones before the latter are actually worn-out. This involves pumping to a level of 420 feet water that only requires a head of 260 feet; but it is believed that the efficiency of the new engine will so far exceed that of the old Gaskill engines that it will cost but little more to raise the water to a level of 420 feet with the former than it would be to raise it to 260 feet with the latter; the pressure would of course have to be controlled by means of a valve at the pump house to avoid injury to plumbing in the houses of the middle service area.

WATER SUPPLY.

With the rapid increase in the development of the distributing system during the last few years the duty demanded of the 48, 36, 30, and 12 inch mains, which bring the water from the distributing reservoir to the city, has greatly increased. Many complaints of insufficient supply have reached this office of late, and after a thorough investigation into the condition of the local distributing service, the difficulty has generally been traced home to the large supply mains. These mains are, in my opinion, already overtaxed.

The following table shows the average total head of water in the 48-inch main on R street, between Ninth and Tenth streets northwest, during the last four years:

Month.	Fiscal year.			
	1891.	1892.	1893.	1894.
	Feet.	*Feet.*	*Feet.*	*Feet.*
July	133.17	125.49	124.14	122.78
August	132.97	125.12	124.14	120.96
September	130.58	124.43	121.56	121.52
October	129.36	124.73	123.31	121.26
November	128.74	128.28	124.02	121.21
December	128.54	126.39	123.79	121.36
January	127.24	124.14	120.34	121.15
February	128.07	126.09	122.04	121.52
March	127.72	128.07	124.76	121.98
April	128.51	128.20	125.29	121.75
May	127.84	127.65	125.98	121.26
June	126.32	125.12	124.39	120.50

I would recommend that these facts be brought to the attention of the United States authorities who have charge of the water supply, and that every effort be made to secure the resumption of work at the earliest possible date upon some project which will give the city an ample supply of good water. In my judgment, even if this work were started now, it could hardly be completed in time to avoid serious distress and a most unsanitary state of affairs.

PUBLIC WELLS.

An appropriation is made annually for the care of the public wells in the District.

There were 216 of these wells in use at the close of the fiscal year, 39 having been filled up and abandoned during the year.

Continued effort has been made to get the water of all these wells analyzed, and arrangements have been made which will lead to their being examined chemically at least once in three months in future. These wells are frequently located within 3 feet of a sewer, and as the sewers are rarely absolutely water tight, it is only to be expected that the wells will sooner or later be contaminated with sewage. As a matter of fact a very large percentage of the wells so far examined have been found to be polluted.

I consider these wells a positive menace to public health at all times and the probable cause of the excessive death rate from typhoid fever which prevails in the District.

I believe that every well located within a few feet of a sewer should be closed forthwith.

REVENUE BRANCH OF THE WATER DEPARTMENT.

The following statement shows the receipts and expenditures of the water department for the fiscal year 1893:

Receipts from July 1, 1893, to June 30, 1894, inclusive.

Water-main assessments:		
Current tax	$80,407.07	
Advertised tax	3,764.01	
		$84,171.08
Interest:		
On current tax	1,531.04	
On advertised tax	1,273.32	
		2,804.36
Water rents		245,899.69
Water taps for services		4,497.00
Water for building purposes		1,168.79
Repayments to appropriation for pumping expenses and pipe distribution, on account per work		590.42
Net receipts		339,131.34

Expenditures from July 1, 1893, to June 30, 1894, inclusive.

Salaries		*$40,619.88
Contingent expenses		†2,658.16
Refunds:		
Water rents	$936.64	
Water-main taxes	124.53	
		1,061.17
Pumping expenses and pipe distribution		‡84,256.67
High service		90,639.75
Interest and sinking fund on account of increasing water supply	$67,537.17	
Interest and sinking fund on account of water-stock bonds	44,610.00	
Interest and sinking fund on account of Fourteenth street, and 48-inch mains	20,358.80	
Total interest and sinking fund		132,505.97
Interest and sinking fund on account of increasing water supply:		
Interest	§$19,288.84	
Sinking fund	42,763.43	
Total expenditures		351,741.60
Water tax levied during year		149,595.74
Water-tax arrears June 30, amount collectible		144,347.55
Total amount standing to the credit of the water fund, June 30, 1894		236,837.88

TABLE 6.—*Comparative statement of revenues.*

Fiscal year.	Water rents.	Water-main assessments.	Taps.	Permits, etc.	Total revenue.
1885	$188,528.20	$20,578.88	$3,402.00	$3,076.09	$145,585.17
1886	124,896.22	36,162.04	5,096.00	3,459.03	169,613.29
1887	133,539.49	47,183.24	6,012.00	4,846.45	196,581.18
1888	171,892.49	34,264.85	4,182.00	4,809.92	215,149.26
1889	189,407.39	46,280.58	5,190.00	5,576.16	246,454.13
1890	197,053.34	45,386.55	5,313.72	6,327.95	254,081.56
1891	209,664.29	50,322.93	5,640.00	6,869.79	272,497.01
1892	220,892.93	68,807.35	5,790.00	6,280.81	301,771.09
1893	235,911.25	70,026.33	7,307.09	7,931.71	321,176.38
1894	245,899.69	86,975.44	4,497.00	1,168.79	338,540.92
1895 (estimated)	255,000.00	90,000.00	5,000.00	1,500.00	351,500.00
1896 (estimated)	265,000.00	95,000.00	5,000.00	1,500.00	366,500.00

Balance in water fund June 30, 1894	$236,837.88
Estimated receipts, 1895	351,500.00
Total	588,337.88
Estimated expenditures, 1895	395,000.00
Estimated available balance June 30, 1895	193,337.88
Estimated receipts, 1896	366,500.00
Estimated total available, 1896	559,837.88

METERS.

Since the last annual report the number of meters in use has increased from 168 to 202; only 34 new meters have been put in during the year. In spite of the extremely low meter rates charged, only 3 cents per 1,000 gallons, it is apparent that meters will not be at all generally introduced until their use is made compulsory. Under the act of July 14, 1870, the Commissioners have authority to require that meters shall be used, and I would recommend that all manufacturing

* Of this amount $27 was paid on account of 1893.

† Of this amount $7 was paid on account of 1892 and $391.73 on account of 1893.

‡ Of this amount $4,817.34 was paid on account of 1893.

§ This item of $62,052.27 was not advanced to Treasurer United States until after close of fiscal year, and is not included in expenditures.

establishments, hotels, and livery stables be required to use them. It is possible that by greatly increasing the number of meters in use a sufficient economy in the use of water may be secured to greatly diminish the inconvenience that the public must, in the near future, submit to before the water supply can be increased, even if steps to that end are taken at once.

The kinds and sizes of meters now in use are shown below:

Size.	Crown.	Thomson.	Worthington.	Nash.	Buffalo.	Total.
¾-inch		1				1
1-inch	2	1	6	6	1	16
1½-inch	15	10	16	4		45
2-inch	16	16	19	7		58
3-inch	11	10	21	5		47
4-inch	8	2	13	1		24
6-inch		2	4			6
Total	3	1		1		5
	55	43	79	24	1	202

Estimates for the water department for the fiscal year 1896.

For revenue and inspection branch:	
One chief clerk	$1,800.00
Two clerks, at $1,400 each	2,800.00
Two clerks, at $1,000 each	2,000.00
One (chief) inspector	936.00
Six inspectors, at $900 each	5,400.00
One messenger	600.00
For distribution branch:	
One superintendent, $2,000 ($400 submitted)	2,000.00
One assistant engineer (submitted)	1,500.00
One draftsman	1,500.00
One foreman, $1,400 ($200 submitted)	1,400.00
One clerk (submitted)	1,400.00
Two clerks, at $1,000 each	2,000.00
One timekeeper	800.00
One assistant foreman	900.00
One tapper and machinist	900.00
One assistant tapper	600.00
Three steam engineers, at $1,100 each	3,330.00
One blacksmith	750.00
Two plumbers, at $750 each	1,500.00
Two assistant machinists, at $864 each	1,728.00
One property keeper	600.00
Three firemen, at $730 each	2,190.00
Two flushers, at $540 each	1,080.00
One driver	480.00
Two watchmen, at $480 each	960.00
One hostler	480.00
One calker	730.00
For contingent expenses ($500 submitted)	3,000.00
For pumping expenses and extension and maintenance of distribution system	90,000.00
For interest and sinking fund, water-stock bonds	44,610.00
For interest on account of increasing water supply	15,581.66
For sinking fund on account of increasing water supply	25,745.02
For fourth year's interest on account of 4-inch and Fourteenth-street mains	7,812.09
For fourth annual installment on account of 48-inch and Fourteenth-street mains	11,836.51

For continuing the extension of the high-service system of water distribution to include all necessary land, machinery, buildings, mains, and appurtenances, so much as may be available in the water fund during the fiscal year 1896, after providing for the expenditures recommended above.

The additions proposed to the permanent force are made necessary by the extension of the system of mains. The increases of salary presented have all been submitted in preceding reports for a number of years past.

SEWER DIVISION.

The report of Mr. D. E. McComb, superintendent of sewers, sets forth in detail the work accomplished during the fiscal year, which is summarized in the table below. Map II shows the location of existing sewers at the close of the fiscal year.

I stated in my last annual report that greater economy in the construction of sewers was confidently looked for, while still maintaining the prevailing high standard of quality. The following table shows the average cost per foot of the various sizes of sewers constructed during the past fiscal year and the year before:

TABLE 7.—*Cost of sewers per linear foot for fiscal year 1893–'94.*

APPROPRIATIONS FOR MAIN AND PIPE, SUBURBAN AND PERMIT WORK.

[Figures in italic indicate work done by day labor; figures in roman indicate work performed under contracts.]

Size.	Number of feet laid.	Allowance to contractor.	Inspection.	Material.	Labor.	Total.	Average cost 1894.	Average cost 1893.
8-inch pipe	*2,085*			*$0.41.1*	*$0.82*	*$1.23.1*	*1.01.4*	*1.35.1*
	1,871.5	$0.62.1	$0.04.9	.10.2		.77.2		
10-inch pipe	*9,904*			*.40.9*	*.84.8*	*1.25.7*	*1.25.7*	*1.38.4*
12-inch pipe	*28,248*			*.46.9*	*.89.7*	*1.36.6*	*1.36.6*	*1.54.4*
15-inch pipe	*7,345*			*.61*	*1.16.7*	*1.77.7*	*1.77.7*	*2.10.6*
18-inch pipe	*2,248*			*.71.1*	*1.42.9*	*2.14*	*2.27.5*	*2.40.2*
	3,342.8	1.73.1	.17.9	.44.8		2.35.8		
21-inch pipe	*670*			*.84.7*	*1.74.6*	*2.59.3*	*2.60.5*	*2.61.0*
	2,279.4	1.87.5	.20.1	.53.3		2.60.9		
24-inch pipe	*1,442*			*1.09*	*2.07.7*	*3.16.7*	*3.08.2*	*3.69.1*
	2,221.9	2,15.5	.20.5	.75.3		3.11.3		
24-inch concrete	*775.6*			*.56.5*	*2.27.3*	*2.83.8*		
2.75 by 4.125 feet, egg-shaped	*304.5*			*2.09.1*	*5.34.3*	*7.42.4*	*7.33.7*	*8.59.9*
	1,045.5	7.82.5	.43	.01.4		8.26.9		
3.25 by 4.875 feet, egg-shaped	*170.1*			*2.18*	*5.86*	*8.04*	*8.04.3*	
	1,309.2	7.49.1	.54.5	.01.6		8.05.2		
2 by 3 feet, egg-shaped	1,201.75	4.15.7	.56	.03.3		4.75	*4.75*	*5.68.2*
2.25 by 3.375 feet, egg-shaped	1,156.1	5.61.2	.56.9	.01.8		6.19.9	*6.19.5*	*6.30.4*
2.5 by 3.75 feet, egg-shaped	2,790.4	7.30.9	.69.5	.02.5		8.02.9	*8.02.9*	*6.95.4*
3 by 4.5 feet, egg-shaped	1,266.5	7.09.6	.55.4	.01.9		7.66.9	*7.66.9*	*8.00.3*
3.5 by 5.25 feet, egg-shaped	831.8	7.17.6	.59.6	.01.7		7.78.9	*7.78.9*	
3.75 by 4.875 feet, egg-shaped	1,231	7.36.2	.32.1	.02.8		7.71.1	*7.71.1*	
3.75 by 5.625 feet, egg-shaped	1,753.7	7.81.2	.54.3	.01.7		8.37.2	*8.37.2*	*11.16.2*
2.75 feet, diameter	532.6	8.48.2	1.14.8	.01.3		9.64.3	*9.64.3*	
4 feet, diameter	172.5	6.17.4	.99.7	.03.7		7.20.8	*7.20.8*	
5.25 feet, diameter	570.8	9.17.6	.56.6	1.62.4		11.36.6	*11.36.6*	
6 feet, diameter	549.9	9.25.4	.53.9	.02.3		9.81.6	*9.81.6*	
11.25 feet, diameter	730	39.22	1.31.2	.00.4		40.53.6	*45.88.4*	
11.25 feet, D-shaped	1,135.5	48.65.2	1.62.7	.01.2		50.29.1		

By comparison of the last two columns in this table it will be noticed that the cost of the work has been reduced in nearly every instance, the saving effected amounting to about $33,000 on the year's work. Part of this saving is doubtless due to the fact that times have been hard during the past year and contractors have not expected as large profits as usual; still, nearly the same proportion of saving has been realized on day-labor work as on contract work, and the District has not reduced wages on day-labor work during the year. Much of the saving effected can be traced to the following causes: At the beginning of the last fiscal year the sewer-pipe market was in the hands of a

combination which was able to exact excessive prices for sewer material. When bids were opened for the year's supply, the combination undertook to raise their rates about 20 per cent. The bids were, however, rejected, and after a protracted struggle the combination was entirely broken up and contracts were finally awarded on exceedingly advantageous terms. An important economy has been made by the substitution of gravel, at 85 cents per cubic yard, for broken stone, at about $1.50, in the making of concrete, and the change has at the same time resulted in an improvement in the quality of the work done.

A change in the method of closing the joints of pipe sewers has saved a few cents a foot on the cost of construction, and considerable sums have been saved by substituting concrete arches for brick ones in the main sewers where circumstances were favorable. The unfortunate experience which the District has had with pipe sewers laid by the board of public works twenty years or more ago, some hundreds of thousands of dollars having been expended of recent years in digging them up and replacing them, has naturally led to excessive precautions in the way of concrete foundations and joint coverings to protect the sewers against the opening of joints by uneven settling and the intrusion of roots through the open joints. I have been of the opinion that the amount of concrete so used, if differently disposed, would alone make an excellent sewer without the use of sewer pipe at all. With a view to testing this 775 feet of 24-inch sewer have been constructed during the year of an excellent quality of concrete 6 inches thick, smoothly plastered on the inside with Portland cement mortar. These sewers have cost $2.84 per foot, as against $3.13 per foot for the 3,663 feet of 24-inch pipe sewer constructed during the year. There is also no doubt in my mind that such a sewer, all of one piece and free from joints, is a far better sewer than those built of pipe with a joint every 3 feet. I believe that important savings can be made by applying this principle very generally during the coming year.

Some progress has also been made in the direction of substituting concrete for brick in the construction of manholes and catch-basins, and I feel entire confidence that continued effort in this direction will result both in reducing the cost and increasing the efficiency of these constructions. The use of concrete, wherever the conditions are suitable, is conducive to economical results not only directly, but indirectly, for it tends to widen the market and causes a reduction in the price of brick and brickwork as a necessary consequence of the increased competition. Great difficulty has been experienced at times during the year in obtaining a sufficient supply of good brick at reasonable prices, and it is confidently expected that the increasing use of concrete will gradually bring about an improvement in the quality of the common brick which are very generally used in the District, and which are often so poorly made that they can be picked to pieces with the finger nail, even before they have been exposed to the frost and the weather.

I am also of the opinion that the invert block used in egg-shaped main sewers is unnecessarily expensive, and that an important saving in the cost of these sewers can be made by omitting the vitrified sewer-brick lining above the invert block, which is one of the most expensive features in their construction. During the year some progress has been made in reducing the width of this lining, but it is only recently that I have satisfied myself that it serves no useful purpose proportionate to its cost, and should be omitted altogether; the side of the sewer should be constructed of concrete in one mass.

A considerable sum of money is expended annually in cleaning out the 3,390 catch-basins in use on the streets to permit the surface water from the gutters to reach the sewers. These basins are so designed that they retain a considerable amount of water, along with street sweepings, and in some cases sand and gravel; when rains happen to be infrequent the street sweepings in these basins begin to putrefy, the basins become malodorous and unsanitary, and they have to be cleaned out. This is a slow and tedious process as now carried out, and consequently expensive. On asphalted streets, where little or no sand or gravel is liable to be washed into the sewers, the design of the basin should be so changed that it would not retain street sweepings, but allow everything to pass directly to the sewers, except sticks and other articles large enough to obstruct the flow in the pipes; the basin should then be connected with the water main, so that it could be washed out by one man simply opening a valve, instead of requiring the work of a gang of several men to remove the stuff by the dipper full and carry it off to a dumping ground in carts.

Where the sewage flowing in a sewer is sufficient in volume, if the grade is proper, the flow in the sewer is sufficiently rapid to remove the putrescible matter before decomposition sets in. At the head of a sewer, however, where there are but few houses draining into it, it very frequently happens that this volume does not exist; some artificial means have then to be resorted to to keep the sewer clean. To meet this difficulty Congress made an appropriation of $10,000 last year for automatic siphons for flushing sewers, and during the year a number of these have been put in. I would recommend, however, that only those be constructed in future which are now appropriated for, and that instead a connection with the water main be made at terminal manholes, so that the dead end of the sewer can be flushed out when necessary by simply opening a valve; this expedient would be far less expensive than the siphon, which costs about $150, and would be far less wasteful of the water supply.

ESTIMATES.

The following estimates are submitted for the sewer department for the fiscal year ending June 30, 1896:

One superintendent of sewers	$2,400
One assistant superintendent of sewers (submitted)	1,800
One general inspector of sewers	1,300
One inspector of sewers	1,200
Two assistant engineers, at $1,500 each	3,000
One draftsman	1,200
One leveler	1,200
Three rodmen, at $780 each	2,340
Three chainmen, at $650 each	1,950
One clerk ($200 submitted)	1,400
Two clerks, at $1,000 each	2,000
Two inspectors of property, at $936 each	1,872
Two sewer tappers, at $1,000 each	2,000
One permit clerk, at $1,500 ($300 submitted)	1,500
Two assistant permit clerks, at $800 each (one submitted)	1,600
Cleaning and repairing sewers and basins	50,000
Relief sewers and for replacing obstructed sewers	65,000
Permit sewers	100,000
Main and pipe sewers	386,300
Suburban sewers	149,300
Completing the construction of the Rock Creek intercepting sewer	60,000
Condemnation of rights of way for construction, maintenance, and repairs of public sewers, $1,000, or so much thereof as may be necessary	1,000
Appliances for flushing sewers	2,500
Continuing and completing the system of sewage disposal and protection *against floods, project* of board of sanitary engineers, 1890	4,000,000
Extending system of trunk sewers in city and suburbs	1,000,000

In submitting these estimates for the sewer department for the coming year, I am aware that it is manifestly not practicable to supply these funds from the annual revenue of the District, nor in my judgment is it desirable to do so. I believe that the District should provide its half of the necessary funds for the last two items by borrowing the money on sewer bonds.

The board of sanitary engineers of 1890 made a most exhaustive study of the requirements of the District for sewage disposal and flood protection, and submitted an admirable report recommending a project estimated to cost $3,538,000, which must be increased to about $4,000,000, on account of the eight-hour law, passed since the estimate was made, and to provide for certain sewers which form part of the project, but were not included in the estimates.

Congress has expressed its approval of this plan by appropriating $250,000 in three years to begin the work; and this is probably about as much as can well be spared from the annual revenues.

But at the rate of $80,000 a year it will take fifty years to complete the work.

Now I submit that this is absolutely impossible; we may stave off the construction of this necessary work one year, two years, or five years, at the risk of an epidemic, and of having all the low district of the city flooded again as it was in 1889; but it requires no other argument than a single visit to the James Creek canal (corner of South Capitol and G streets) or to the head of Seventeenth street outlet canal (Seventeenth street and Virginia avenue) to convince the most skeptical that it is absolutely impossible to continue to maintain these open cesspools, miles in extent, in the heart of this growing city for any such period as fifty years; and we must bear in mind that in all the long chain of works which the project of the board of sanitary engineers provides for, the closure of these two open drains is, by force of circumstances, the very last link. Finally, as an economic question, it should be observed that the work can not be constructed piecemeal for the same amount of money that would build it if made available so as to admit of the work being undertaken in the most advantageous manner; and the circumstances of the problem are such that the required works constitute one vast plant that can not be put in operation till all its parts are ready; all the money invested in it must lie idle until the whole has been completed.

No corporation could afford to invest $4,500,000 in annual installments and get no return on the investment for fifty years.

STREET LIGHTING.

At the close of the fiscal year, the streets were being lighted with 327 1,000-candle-power electric lights, a decrease of 5; 6,246 gas lamps, an increase of 292; and 747 oil lamps, an increase of 47. The report of the superintendent of lamps gives a detailed account of the operations of this department for the year. Map III shows the location of existing lamps.

The service has been about the same as heretofore. The streets of this city are most difficult to light, owing to the great number of trees planted on the curb line. The heavy shade makes the use of large electric lights at wide intervals generally unsuitable, and the high price charged by the electric company makes it impossible to even extend this system to all the streets where the trees will permit. The trees are generally located so near the curb that the lamp-posts have

to be set on practically the same line as the trunks of the trees, so that even in winter, when the trees are bare of leaves, the streets look gloomy at night as compared with the streets of most large capitals.

Some experiments have been made during the year looking to a change in the type of lamp-post and lantern to obviate this difficulty as far as possible, but so far without developing anything that could be considered a solution of the problem. In many cases I am inclined to think that the best results would be obtained by locating the lamp-posts in the center of the street, as is done, to some extent, in many foreign cities. A curbing around the foot of the post serves the purpose of protecting the post and furnishes a place of safety where women and children can take refuge in crossing crowded streets. These small refuges, placed at intervals of 100 or 125 feet, serve also the useful purpose of helping to regulate traffic, as vehicles naturally keep to the right of them.

Some steps have been taken during the year to improve the method of marking the names of the streets at street corners. The existing method is not altogether satisfactory, as the glass signs used are constantly getting broken; are expensive to replace, and, with the small number of inspectors in the street-lighting department, are liable to remain broken for weeks before they are discovered and replaced. On streets lighted by electricity, lamp-posts are maintained at street corners for the sole purpose of carrying the street designations, forming unnecessary obstructions on the sidewalks and detracting from the beauty of the streets. The best-marked city of which I have knowledge at home or abroad, is Paris, where the streets are all marked with absolute uniformity by means of a blue enameled sign placed on corner houses at the level of the second floor and bearing the name of the streets in white block letters. In Paris, all corner houses bear these signs, be they palaces or shanties. A specimen of these signs has recently been obtained from Paris; arrangements have been made for duplicating them, and signatures of the owners of a number of corner houses have been obtained permitting the placing of these signs on their property.

A very advantageous contract has been entered into for the substitution of gasoline for the old oil lamps heretofore used where gas mains have not been laid. The lamps are to be lighted from forty minutes after sunset until forty minutes before sunrise every night of the year for $17 per lamp per annum.

The following estimates are respectfully submitted for the next fiscal year:

One superintendent of lamps ($800 submitted)	$1,800
Three inspectors of gas and electric lighting, $900 each	2,700
Operating and extending the street-lighting system ($129,856 submitted	271,856

The reasons for the proposed increase in the salary of the superintendent of lamps are given in the report of that official, herewith. I heartily concur with him. I am able to add, also, that I am absolutely certain that no man competent to fill the position of superintendent of lamps can be found who would hold it for any length of time at the salary of $1,000 per annum. The position is a difficult one to fill, and frequent changes in it are most disadvantageous to the work.

A marked increase is asked in the appropriation for street lighting, because it is not believed that the existing service is satisfactory, or in keeping with the high standard set in the other branches of the city government. Nearly all of the streets are but dimly lighted, many of them are not lighted at all; there are many thickly inhabited alleys

entirely without lights, and it is very generally believed that it is high time the city ceased to depend upon the moon for any portion of its street lighting.

INSPECTION OF PLUMBING.

The new plumbing regulations, issued under the act of April 23, 1892, were adopted by the Commissioners February 15, 1893, and took effect April 21, 1893. Comparatively little friction has attended their introduction, and it is believed that, as time passes, they will be more and more highly appreciated by all concerned. As stated in the report of the inspector of plumbing, the new regulations have greatly increased the work of his office; 6,788 inspections have been made during the year. The inspector of plumbing now has four assistants, and their work has been greatly hampered by the lack of funds for contingent expenses. I would particularly urge an appropriation to supply each of the inspectors with a bicycle; the distances are so great in Washington that much valuable time is lost by going to and fro on foot.

Estimates for 1895–'96.

Salary of inspector of plumbing	$2,000
Salary of four assistant inspectors of plumbing, at $1,000 each	4,000
For contingent expenses	650

INSPECTION OF GAS AND METERS.

Four laboratories for testing gas have been in operation during the year. The gas supplied by the Washington Gaslight Company is tested at 403 Tenth street NW.; 1335 Fourteenth street NW., and at Fifth and D streets SE. The gas furnished by the Georgetown Gaslight Company is examined at 1338 Thirty-second street NW. The quality of the gas has been tested at these laboratories daily, and has, with very few exceptions, exceeded the standard prescribed by law.

Estimates for 1896.

One inspector of gas and meters	$2,000
One assistant inspector of gas and meters	1,000
One messenger	480

The contingent expenses of the two new laboratories and the one in Georgetown are paid by the gas companies in accordance with the provisions of the appropriation bill for 1894. There appears to be no good reason why the remaining laboratory—the one on Tenth street—should not be provided for in the same way. I would recommend that the necessary legislation be obtained to secure this result.

PERMIT OFFICE.

This office issues all permits to plumbers and others for all connections with water mains, sewers, gas mains, electric conduits, and for all excavations in the streets for repairs or other purposes. A fee of $1 is collected for each of these permits, and heretofore the amounts so collected have been credited to the revenues of the District.

Under the act of April 23, 1892, however, the fees authorized are "to be paid to the collector of taxes of the District of Columbia, and by him deposited in the Treasury of the United States, one-half to the credit of the United States and one-half to the credit of the District of Columbia."

There appears to be no reason why one-half of these revenues should be paid to the United States; no more reason than that the District should pay the United States one-half of its other revenues. It is particularly inequitable in this case, as the water fund, which is managed separate from the other revenues of the District, now loses its entire share of the revenue of the permit office in spite of the fact that most of the fees collected are for water-department permits. It is believed that this provision of the act of April 23, 1892, was inserted through some misunderstanding of the facts, and I would recommend that the necessary legislation be secured to permit the crediting of the revenue of the permit office to the general revenue of the District of Columbia and to the water fund, as heretofore. The revenue of the office for the last fiscal year amounted to $7,024.

Estimates for 1896.

Salary of one permit clerk ($300 submitted)	$1,500
Two assistant permit clerks (one submitted)	1,680
Contingent expenses	500

The above increase in the salary of the permit clerk and the addition of one assistant are made necessary for reasons set forth below.

During the last fiscal year the work of the permit office has been greatly increased. New branches of work have been added to the office, and it is believed that in the immediate future still further additions must be made to the duties and responsibilities of the permit clerk.

The greatest difficulty that the assistant in charge of the subsurface department has to contend with in trying to secure prompt, thorough, and efficient work in all branches of his department lies in the impossibility of finding time to attend to the legitimate administrative duties of his position, to give the proper amount of thought and study to the technical questions always before the office, and at the same time to receive and attend to the steady stream of persons who come in to ask simple questions that could as well be answered by any well-informed clerk, to complain that something is wrong about a sewer or water main, or to advocate improvements that really require no argument beyond the mere statement of the applicant that he would like the improvement made. No case of this kind should by right ever go above the ground floor of the District building except on appeal; whereas it is of almost daily occurrence that applicants of this class reach the office of the subsurface department only after having consumed the time of one or more of the Commissioners, and then only to be referred to some head of a division or told that their signatures to an application was all that was necessary to secure the result desired. Some more direct method of transacting this class of business would not only make it possible for heads of departments to devote their time to more difficult work, but would also be a great convenience to the public.

To meet this difficulty as far as possible it has been made the duty of the permit clerk to receive and forward to the proper division all complaints with regard to sewers, water service, street lamps, pavements, or any other work under the Engineer Commissioner. A suitable system of checks makes it easy for the assistant in charge to satisfy himself that every such complaint has reached the proper office and received prompt attention. With a view to making it possible for the permit clerk to answer all the ordinary questions that are being *asked* every day with regard to the status of improvements proposed,

in progress, and completed, a very large amount of work has been done toward equipping his office with records giving the desired information in convenient shape for reference, and a system has been adopted to insure these records being kept posted to date. This work is not yet completed. It is also proposed to supply the permit office with a complete set of blank applications for sewers, water mains, street lamps, etc., so that applicants need only step into this office, conveniently located at the entrance to the building, where their applications will be received and at once forwarded to the appropriate division for investigation and report.

In conclusion, in submitting this report, just as I am about to be transferred to other duty, I beg to bear testimony to the faithful, conscientious, and zealous work which I find to be the rule rather than the exception among the employés of your office, and to the pleasure I have taken in serving with them and under your orders.

Respectfully submitted.

GEO. MCC. DERBY,
Captain of Engineers, U. S. A.,
Assistant in Charge of Subsurface Department.

REPORT OF SUPERINTENDENT OF WATER DEPARTMENT.

WASHINGTON, *November 9, 1894.*

SIR: I have the honor to submit the following report of the operations of the distribution branch of the water department for the fiscal year ending June 30, 1894:

Complaints of the scarcity of water on the higher elevations in the gravity service have been more frequent than during the previous year, due to the rapid extension of distribution mains in the low and high service system, excessive waste, and increase in the daily consumption of water.

The 5,000,000-gallon triple-expansion pumping engine and two water-tube boilers for supplying the new reservoir at Reno are being erected at the U-street station by the Nordberg Manufacturing Company, of Milwaukee, Wis. Nearly all the material to complete the plant has been delivered. The engine was extremely well designed, and all working parts easily accessible. There are important features in connection with the plant due to special construction and proportions adopted for the different parts and the use of more expensive material than is usual in pumping engines.

Since the Georgetown pumping station was abandoned the high-service areas of Washington and Georgetown have been fairly well supplied by the Gaskill engines of the U-street station.

The average daily pumpage of water at both high service-stations at the close of the fiscal year 1893, was 2,124,387 gallons. The average daily pumpage at the U-street station at the close of the last fiscal year was 2,579,429 gallons. Since the commencement of the present fiscal year the daily pumpage has increased to 3,236,873 gallons, due to the extension of the high-service area south of Florida avenue from Seventh to Eighteenth streets NW., and north of Florida avenue from Seventh street to Connecticut avenue, and in the northeast section to Eckington and Brookland.

The increasing demand for more water in the high-service areas has rendered it necessary to keep both engines at this station in almost continuous operation. The engines should have been thoroughly overhauled during the past summer. It was, however, impossible to stop one engine at a time long enough to do the work required. The new pumping engine and boilers now in course of erection at the U-street station will be completed, and connection made with the mains on U street some time before the new reservoir at Reno will be in condition to receive water. When the new engine is ready for operation it can be used to relieve the Gaskill engines while undergoing repairs.

The 12-inch delivery and distribution mains connected with the standpipe on Sixteenth street extended were disconnected soon after the commencement of the fiscal year, and the mains connected for a direct system of water supply in the Washington high-service district. It was found, after a trial of several months, that the standpipe could be dispensed with, and it was removed in February.

The 12-inch main laid from the U-street station to and on Woodley, Tennallytown, and Brookeville roads, and on Birney street to Reno, to supply the new reservoir to be constructed at Reno, was connected with a temporary tank of 30,000 gallons, capacity located on the east side of the reservoir site, has been supplied with water from the U-street station by a steam pump, erected temporarily in the engine room, which has delivered into the main and tank at Reno since the 27th of July of the present year an average of 48,012 gallons of water per twenty-four hours. It is believed that the present supply of water to Reno can be continued until the new reservoir and pumping plant for supplying same is fully completed.

During the year 2,493¼ linear feet of 3-inch, 12,832½ linear feet of 4-inch, 84,694 linear feet of 6-inch, 39,386 linear feet of 12-inch, and 278 linear feet of 20-inch cast-iron water pipe were laid; 1,938¼ linear feet of 6-inch cast-iron water pipe were laid in the erection of fire hydrants; 338 linear feet of 3-inch, and 350 feet of 6-inch water main were lowered to the required depth; 1,005 linear feet of water-service pipe were lowered; 107 stop-valve casings were adjusted to new grade; 70 repairs were made to stop-valves; 325 stop-valves were connected to water mains; 65 street washers and water-service boxes were adjusted to new grade.

The following table shows the locations of water connections made at the expense of applicants:

Street.	Streets between.	Size.	Length.
		Inches.	*Lin. ft.*
Thirty-first	M and N NW	3	38
B	First and Second SW	3	78
Fourteenth	G and New York avenue NW	3	54
La alley	Twelfth and Thirteenth, Walter and C SE	3	4
Potomac	N and O NW	3	179
E	Sixth and Seventh NW	3	44
	Second and T NE	4	29
Wisconsin avenue	Naval Observatory grounds	6	8
Total			434

There are 1,498 fire hydrants in service; 111 fire hydrants were erected in new locations; 4 fire hydrants were moved to new curb line; 10 fire hydrants were moved from one location to another; 1,185 repairs were made to fire hydrants.

There are 311 street hydrants in service; 16 new hydrants were erected; 37 were erected in place of old ones; 13 were removed and abandoned; 794 repairs were made to street hydrants.

There are 62 drinking fountains for animals in service; 6 new fountains were erected; 98 repairs were made to fountains.

There are 216 public pumps and wells in the District; 12 new pumps were erected; 39 pumps were removed and the wells filled and abandoned; 636 repairs were made to pumps during the year.

Table 2 shows location of public pumps at the end of the fiscal year.

TABLE 2.—*Location of public pumps.*

NORTHWEST.

Location.	Street or avenue.	Location.	Street or avenue.
Northwest corner	Thirty-fifth and V.	South side	O, between Thirty-first and Thirty-second.
West side	Thirty-fifth, near T.		
	Thirty-fourth, near U.	Northwest corner	Twenty-eighth and O.
Southeast corner	Thirty-fourth and S.	Southwest corner	Twenty-sixth and P.
Northwest corner	Thirty-fourth and Q.	Northwest corner	Twenty-seventh and K.
West side	Thirty-fourth, between P and Q.	West side	Twenty-sixth, between E and F.
East side	Thirty-second, near T.	Southeast corner	Twenty-sixth and D.
Southwest corner	Thirty-second and R.	Southwest corner	Twenty-third and M.
West side	Thirty-second, between P and Q.	Northwest corner	Twenty-third and G.
		North side	D, between Twenty-second and Twenty-third.
	Thirty-second, between O and P.	South side	Twenty-second and B.
Southeast corner	Thirty-second and Dunbarton.		Virginia avenue, between Twenty-first and Twenty-second.
Northwest corner	Thirty-third and N.		
	Thirty-sixth and O.	Southeast corner	Twenty-first and New York avenue.
Northeast corner	Thirty-seventh and O.		
West side	*Valley, near Q.*	South side	I, near Twenty-first.

TABLE 2.—*Location of public pumps*—Continued.

NORTHWEST—Continued.

Location.	Street or avenue.	Location.	Street or avenue.
North side	R, between Eighteenth and Nineteenth.	Northwest corner	Fourth and M.
Northwest corner	Eighteenth and S.	West side	New Jersey avenue, between M and N.
North side	T, between Seventeenth and Eighteenth.	Southeast corner	New Jersey avenue and Pierce.
	New York avenue, between Seventeenth and Eighteenth.	Northwest corner	Third and L.
	Caroline, between Fifteenth and Sixteenth.	South side	New York avenue, between Fourth and Fifth.
Northwest corner	Sixteenth and Corcoran.		New York avenue, between Sixth and Seventh.
Northeast corner	Seventeenth and K.	North side	G, between First and North Capitol.
West side	Twelfth, between G and H.		Massachusetts avenue, between First and North Capitol.
Northwest corner	Twelfth and New York avenue.	Southeast corner	First and O.
	Twelfth and Massachusetts avenue.		Second and B.
Southwest corner	Twelfth and N.	Northeast corner	Third and Indiana avenue.
Southeast corner	Twelfth and Florida avenue.	West side	Four-and-a-half, between C and D.
	Twelfth and Q.	South side	E, between Seventeenth and Eighteenth.
East side	Eleventh, near G.	North side	Massachusetts avenue, between Sixth and Seventh.
Southeast corner	Eleventh and M	South side	Wilson, between Third and Fourth.
Northwest corner	Tenth and K.	East side	Sixth (extended), near Lincoln.
Northeast corner	Tenth and N.	Southeast corner	Brightwood avenue and Irvin.
Northwest corner	Ninth and I.	West side	Brightwood avenue, south of Whitney.
Southeast corner	Ninth and H.		Brightwood avenue, north of Whitney.
North side	Louisiana avenue, between Ninth and Tenth.	East side	Brightwood avenue, Brightwood, D. C.
Southwest corner	Eighth and F.	Northeast corner	Sherman and Sheridan avenue.
Southeast corner	Eighth and L.	Southwest corner	Sherman and Farragut.
West side	Eighth, between N and O.	Northwest corner	Fourteenth and Park.
East side	Seventh, between M and N.	North side	Sheridan avenue.
	Seventh, between L and M.	Southwest corner	Eighth (extended) and Grant avenue.
South side	L, between Sixth and Seventh.	North side	K, between Twenty-first and Twenty-second.
Southeast corner	Sixth and O.		
Northwest corner	Sixth and K.		
Northeast corner	Sixth and H.		
East side	Sixth, between F and G.		
Northwest corner	Fifth and N.		
Southeast corner	Fifth and Ridge.		
East side	Fifth, between I and K.		
West side	Fifth, between P and Q.		
Northeast corner	Vermont avenue and L.		
Northwest corner	Thirteenth and M.		
South side	H, between Fourth and Fifth.		

NORTHEAST.

East side	North Capitol, between B and C.	Southwest corner	Fifth and A.
Engine Company No. 3.	Delaware avenue and C.	Southeast corner	Fifth and B.
		Northeast corner	Fifth and L.
		Northwest corner	Sixth and C.
Southeast corner	First and K.	East side	Sixth, between A and B.
West side	Colfax, between L and M.	Northwest corner	Eighth and A.
Northwest corner	First and G.		Eighth and C.
Southeast corner	Second and E.	Southwest corner	Ninth and A.
West side	Second, between East Capitol and A.	North side	E, between Eighth and Ninth.
Northwest corner	Third and C.	Southwest corner	Thirteenth and F.
	Third and Massachusetts avenue.	Northwest corner	Eleventh and F.
		North side	B, between Thirteenth and Fourteenth.
East side	Third, between K and L.	West side	Kendall, Ivy City.
Northwest corner	Fourth and K.	East side	Lincoln avenue, between S and T.
Southwest corner	Fourth and I.		
East side	Fourth, between G and H.	Southeast corner	North Capitol and Randolph.
Northeast corner	Second and G.	North side	Caton avenue, near Glenwood road.
Northwest corner	Fourth and E.		
Northeast corner	Fourth and East Capitol.		

SOUTHWEST.

Location.	Street or avenue.	Location.	Street or avenue.
Southeast corner ..	Fourteenth and B.	Southeast corner ..	Four-and-a-half and Maryland avenue.
Northwest corner..	Fourteenth and D.	North side.....	I, between Four-and-a-half and Sixth.
North side.....	Virginia avenue, between Tenth and Eleventh.	South side	K, between Four-and-a-half and Sixth.
Northeast corner ..	Eleventh and F.	Northwest corner..	Union and M.
South side	D, between Ninth and Tenth.	Southeast corner...	Union and N.
Northeast corner ..	Tenth and E.	In alley.....	Third and Four-and-a-half and B and C.
Southeast corner ..	Eighth and E.	Northeast corner ..	Third and D.
West side.....	Seventh and Virginia avenue.	South side	F, between Third and Four-and-a-half.
Southeast corner ..	Seventh, between G and H.	North side.....	B, between First and Second.
Northeast corner ..	Seventh and I.	Southwest corner..	First and F.
East side	Seventh and M.	East side	First, between N and O.
Southeast corner ..	Sixth, between M and N.	Southwest corner..	South Capitol and N.
North side.....	Seventh and E.	Southeast corner...	Half and P.
Northwest corner .	Sixth and I.	East side	First and T.
Southeast corner ..	K, between Sixth and Seventh.	West side.....	Sixth, between M and N.
Northeast corner ..	Sixth and H.	Southeast corner...	Four-and-a-half and E.
	Sixth and G.		
	Sixth and Maryland avenue.		

SOUTHEAST.

East side	New Jersey avenue, between I and K.	Southeast corner ..	Eighth and A.
Northeast corner ..	First and K.	Northeast corner ..	Ninth and C.
Southeast corner...	First and M.		Ninth and South Carolina avenue.
Northeast corner ..	Half and N.	Southeast corner ..	Ninth and E.
South side.	N, between First and New Jersey avenue.	West side	Tenth, between M and N.
North side.....	O, between Half and First.	Southeast corner ..	Tenth and E.
Northeast corner...	Second and I.	Northwest corner..	Tenth and South Carolina avenue.
Northwest corner..	Second and E.	South side.....	South Carolina avenue, between Tenth and Eleventh.
West side.....	Second and B.	East side	Eleventh, between B and C.
Southeast corner ..	Third and Pennsylvania avenue.		Eleventh between G and I.
Southwest corner..	Third and C.	South side.....	I, between Eleventh and Twelfth.
Southeast corner ..	Third and North Carolina avenue.	East side	Eleventh, between N and O.
North side.....	North Carolina avenue, between First and Second.	Southeast corner ..	Twelfth and G
Southeast corner ..	Third and M.	East side	Twelfth, between D and E.
North side.....	Georgia avenue, between Third and Fourth.	South side	E, between Twelfth and Thirteenth.
West side	Fourth and South Carolina avenue.	West side	Thirteenth, between D and E.
Northeast corner ..	Fourth and E.	South side.....	K, between Thirteenth and Fourteenth.
Southeast corner ..	Fourth and C.		L, between Thirteenth and Fourteenth.
Northeast corner..	Fourth and Pennsylvania avenue.	Northeast corner ..	Fifteenth and K.
	Fifth and G.	West side	T, Hillsdale
	Sixth and G.	Southeast corner ..	Staunton and Elvin avenue, Hillsdale.
West side.....	Sixth, between D and E.	West side.....	Nichols avenue, opposite Birney school.
East side	Sixth, between C and Pennsylvania avenue.	Northeast corner ..	Washington and Pierce, Anacostia.
Southwest corner..	Sixth and B.	North side.....	Jefferson, between Morris and Fillmore, Anacostia.
Southeast corner ..	Sixth and A.	Southwest corner..	Harrison and Pierce, Anacostia.
Northwest corner..	Seventh and B.		Fillmore and Jackson, Anacostia.
East side	Seventh, between B and C.	South side.....	Harrison and Minnesota. Anacostia.
Northwest corner..	Seventh and G.		
Northeast corner ..	Seventh and Virginia avenue.		
Northwest corner..	Eighth and I.		
Northeast corner ..	Eighth and D.		

TABLE 3.—*Location of public wells filled and abandoned during the fiscal year.*

First street, between P and Q NW.
Seventh and O streets NW.
Four-and-a-half and G streets SW.
Fifth and B streets SE.
Thirteenth street and Pennsylvania avenue SE.
Twenty-first and E streets NW.
Half street, between H and I SW.
Twelfth and M streets NW.
Washington and Monroe streets, Anacostia.
Fourteenth and A streets SE.
Thirteenth and C streets NE.
Eighteenth street and Georgia avenue SE.
Massachusetts avenue, between Seventeenth and Eighteenth SE.
Eighteenth street, between East Capitol and A NE.
Eighteenth street, between B and C SE.
Seventeenth and M streets NW.
Third street and South Carolina avenue SE.
Twelfth and C streets SW.
Tenth and S streets NW.
Tenth street, between B and C NE.
Four-and-a-half and D streets SW.
Eighth and E streets SE.
Twenty-seventh street, between I and K NW.
New Jersey avenue, between D and E streets SE.
Eighth street and Maryland avenue NE.
New Jersey avenue and K street NW.
Q street, between Second and Third NW.
Fifteenth and M streets NW.
Fourteenth and C streets SE.
Thirteenth street and Georgia avenue SE.
Seventh and A streets SE.
A street, between Eighteenth and Nineteenth SE.
Seventeenth and East Capitol streets.
Fourteenth and K streets SE.
Tenth street, between N and O NW.
Seventeenth and Madison streets NW.
D street, between Seventh and Eighth SW.
F street, between First and North Capitol NE.
Park and School streets NW.

In conclusion, in submitting this report I beg leave to commend the fidelity and general efficiency of the employés of this office.

Respectfully submitted.

H. F. HAYDEN,
Superintendent Water Department.

Capt. CHARLES F. POWELL,
Corps of Engineers, U. S. A.,
Engineer Commissioner, District of Columbia.

REPORT OF CHIEF CLERK OF WATER DEPARTMENT.

ENGINEER DEPARTMENT, WATER OFFICE,
Washington, D. C., August 31, 1894.

SIR: I have the honor to submit the following report of the operations of the revenue and inspection division of the water department for the year ending June 30, 1894.

Financial statement.

Receipts	$338,540.92
Expenditures	351,741.60
Inspections made	23,517
Leaks found	1,587
Leaks repaired	1,404
Wastes found	32
Warrants procured	24
Fines	$116.00
Forfeits	$25.00
Bonds taken in cases	3
Bills delivered by inspectors	34,052
Meters set during the year	34

The following tables are submitted:

Table No. 1, a statement of the receipts of the water department from all sources from June 30, 1878, to June 30, 1894, amounting to $3,245,202.27.

Table No. 2, a statement of expenditures from July 1, 1878, to June 30, 1894, showing total expenditures of $1,691,752.98.

Table No. 3, a statement of assessments and collections of water-main tax from June 30, 1878, to July 1, 1894. Total amount assessed, $757,738.72. Total amount collected, $563,683.85.

Table No. 4, a statement of advances to the Treasurer of the United States from 1880 to 1894, amounting to $1,316,598.66

Table No. 5, giving the number of houses in the District of Columbia supplied with Potomac water.

Table No. 6, giving the number of miscellaneous water-takers.

Table No. 7, giving the size, kind, and total number of water meters in use to June 30, 1894.

Very respectfully, your obedient servant,

JNO. J. BEALL,
Chief Clerk Water Department, District of Columbia.

Capt. CHAS. F. POWELL,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.

Organization and estimates for the fiscal year 1896.

For revenue and inspection branch:	
For one chief clerk	$1,800
Two clerks, at $1,400 each	2,800
Two clerks, at $1,000 each	2,000
One chief inspector, at $1,000 ($64 submitted)	1,000
Seven inspectors, $900 (one submitted)	6,300
One messenger	600
For contingent expenses, including books, blanks, stationery, forage, printing, advertising, and other necessary items and services	2,500

TABLE I.—*Statement of receipts of the water department, District of Columbia, from July 1, 1878, to June 30, 1894.*

Fiscal year.	Balance on hand July 1, 1878.	Mains to Government Printing Office.	Water-main tax.		Interest, water-main tax.		Water rent.	Taps.	Permits and other sources.	Total receipts.
			Advertised.	Current.	Advertised.	Current.				
Balance on hand July 1, 1878	$16,809.42									$16,809.42
Received year ending June 30—										
1879			$6,195.59	$12,463.10	$1,635.96	$1,059.53	$43,574.24	$1,986.00	$2,139.25	*69,053.67
1880			10,248.87	11,926.81	3,457.43	1,340.18	165,641.42	1,980.00	2,188.10	196,782.81
1881			3,200.38	18,368.39	1,228.94	4,040.08	109,737.83	1,851.00	1,915.72	†140,342.34
1882		$2,800.00	4,017.92	3,305.50	2,086.07	392.34	101,621.10	1,815.00	1,789.71	117,827.64
1883		1,750.00	7,320.13	5,467.96	3,769.83	350.54	65,752.24	2,193.00	2,188.72	88,792.42
1884			3,503.12	8,700.53	2,385.59	122.42	119,610.20	2,373.00	2,418.79	139,173.65
1885			3,282.57	14,430.22	2,598.81	267.28	118,528.20	3,402.00	3,076.09	145,585.17
1886			3,564.81	29,631.30	2,343.44	622.49	124,896.22	5,096.00	3,459.03	169,613.29
1887			7,630.50	34,874.59	3,183.62	1,494.53	138,539.49	6,012.00	4,846.45	196,581.18
1888			8,605.53	19,939.91	5,120.55	598.86	171,892.49	4,182.00	4,809.92	215,149.26
1889			5,524.26	36,464.29	3,192.09	1,099.94	189,407.39	5,190.00	5,576.16	246,454.13
1890			9,207.61	29,257.28	5,364.04	1,557.62	197,053.34	5,313.72	6,327.95	254,081.56
1891			2,863.02	45,055.34	1,630.54	774.03	209,664.29	5,640.00	6,869.79	‡272,497.01
1892			4,562.67	60,415.38	2,064.56	1,764.74	220,892.93	5,790.00	6,280.81	301,771.09
1893			4,081.83	63,099.31	1,516.15	1,329.04	235,911.25	7,307.09	7,931.71	321,176.38
1894			3,764.01	80,407.07	1,273.32	1,531.04	245,899.69	4,497.00	1,168.79	§338,540.92
Repayments during various fiscal years										14,970.33
Total	16,809.42	4,550.00	87,632.82	473,806.98	42,850.94	18,344.66	2,458,622.32	64,627.81	62,986.99	3,245,202.27

*This does not include $12.50 which U. S. Treasurer has credited to this year's receipts, but which does not appear on books of water department.
†Dec. 10, 1880, there was collected $10.75 on account of water-main tax (advertised), which sum was deposited to credit of "arrears of general taxes."
‡July 29, 1890, there was collected $2 on account of water rents, which sum was deposited to credit of general taxes Aug. 13, 1890.
§In addition to this amount, $2,467 was collected on account of permits, of which one-half was deposited to credit United States and one-half to credit District of Columbia, by act of Congress.

TABLE II.—*Expenditures.*

Fiscal year.	Purchase of pump-house lot and erection of stand-pipe.	Extra clerical services making new water rent and numerical books.	High services.	Material and labor, pumping expenses, and pipe distribution.	Salaries, water department.	Contingent expenses.	Water rent refunded.	Water-main tax refunded.	Interest on water-main tax refunded.	Purchase of new pumping engines and boilers.	Water main to Government Printing Office.	Total expenditures.
Expended from—												
July 1, 1878, to June 30, 1893	$36,488.26	$1,225.00	$8,818.41	$1,068,818.70	$244,736.09	$27,354.73	$41,263.39	$1,654.51	$170.81	$33,041.24	$8,946.21	$1,472,517.35
1894, on account of 1892						7.00						7.00
1894, on account of 1893				4,817.34	27.00	391.73						5,236.07
1894, on account of 1894			90,639.75	79,439.33	40,592.88	2,259.43	936.64	124.53				213,992.56
Total	36,488.26	1,225.00	99,458.16	1,153,075.37	285,355.97	30,012.89	42,200.03	1,779.04	170.81	33,041.24	8,946.21	1,691,752.98

Financial statement for fiscal year 1893–'94.

Receipts from July 1, 1893, to June 30, 1894, inclusive:		
Water-main assessments:		
Current tax	$80,407.07	
Advertised tax	3,764.01	
		$84,171.08
Interest:		
On current tax	1,531.04	
On advertised tax	1,273.32	
		2,804.36
Water rent		245,899.69
Water taps for services		4,497.00
Water for building purposes, etc		1,168.79
Repayment to appropriation for pumping expenses and pipe distribution on account permit work		590.42
Total receipts:		339,131.34
Expenditures from July 1, 1893, to June 30, 1894, inclusive:		
Salaries		*40,619.88
Contingent expenses		†2,658.16
Refunds:		
Water rents	$936.64	
Water-main taxes	124.53	
		1,061.17
Pumping expenses and pipe distribution		‡84,256.67
High service		90,639.75
Interest and sinking fund on account of increasing water supply	67,537.17	
Interest and sinking fund on account of water stock bonds	44,610.00	
Interest and sinking fund on account of Fourteenth street and 48-inch mains	20,358.80	
Total interest and sinking fund		132,505.97
Interest and sinking fund on account of increasing water supply:		
Interest	§19,288.84	
Sinking fund	42,763.43	
Total expenditures		351,741.60
Water-main assessments levied during year		149,595.74
Water-tax arrears, June 30, 1894—amount collectible		144,347.55
Total amount standing to credit of water fund June 30, 1894		236,837.88

*Of this amount $27 was paid on account of 1893.

†Of this amount $7 was paid on account of 1892, and $391.73 on account of 1893.

‡Of this amount $4,817.34 was paid on account of 1893.

§This item of $62,052.27 was not advanced to Treasurer United States until after close of fiscal year and is not included in expenditures.

TABLE III.—*Statement of assessments and collections of water-main tax from July 1, 1878, to June 30, 1894.*

Fiscal year.	Amount assessed	Duplicate payments and overpayments.	Six per cent abatement.	Amount of tax canceled subsequent to July 1, 1878.	Amount collected July 1, 1878, to June 30, 1894.	Amount outstanding July 1, 1894, subject to exemption act of March 3, 1881.	Amount of collectible tax outstanding July 1, 1894.
From June 30, 1878, to June 30, 1893	*$608,142.98	$1,664.77	†$223.75 16,218.39 ‡223.37	$26,646.38	$494,879.48	$4,113.78	$67,502.60
1894	149,595.74	124.53	§3,515.26	555.69	68,804.37	.....	76,844.95
Total	757,738.72	1,789.30	20,180.77	27,202.07	563,683.85	4,113.78	144,347.55

* Of this amount $94,124.78 was outstanding and uncollected July 1, 1878.

† Amount of abatement allowed property owners on College Hill for amounts paid by them to R. A. Charles.

‡ Abatement allowed on tax assessed in fiscal year ending June 30, 1893, but not paid until after July 1, 1893.

§ From this abatement $7.50 was deducted on account of refund of erroneous payment.

RECAPITULATION.

Total amount of assessments plus duplicate payments	$759,528.02
Amount of abatement at 6 per cent	19,957.02
Amount of abatement allowed property owners on College Hill for amounts paid by them to R. A. Charles	223.75
Amount of tax canceled and struck off books since July 1, 1878:	
By order of Commissioners District of Columbia, decision of Supreme Court, etc., various dates	27,202.07
By amount subject to exemption act March 3, 1881	4,113.78
Amount of tax collected from July 1, 1878, to June 30, 1894	563,683.85
Amount outstanding July 1, 1894—collectible tax	144,347.55
Total	759,528.02

TABLE IV.—*Advances to Treasurer United States.*

Fiscal year.	Interest and sinking fund water-stock bonds.	Interest and sinking fund increasing water supply.	Interest and sinking fund 48-inch and Fourteenth street mains.	Total interest and sinking fund.
Advanced to Treasurer United States, *ex officio* commissioner of sinking fund, District of Columbia:				
1880	$74,025.00	.....	.....	$74,025.00
1881	74,123.77	.....	.....	74,123.77
1882	43,796.08	.....	.....	43,796.08
1883	44,610.00	.....	.....	44,610.00
1884	44,575.00	.....	.....	44,575.00
1885	44,610.00	$13,686.23	.....	58,296.23
1886	31,485.00	55,047.27	.....	86,532.27
1887	57,735.00	.....	.....	57,735.00
1888	31,485.00	57,239.02	.....	88,724.02
1889	44,610.00	76,655.69	.....	121,265.69
1890	44,610.00	81,283.26	.....	125,893.26
1891	44,610.00	71,164.21	.....	115,774.21
1892	44,610.00	69,991.13	.....	114,601.13
1893	44,610.00	68,817.14	$20,713.89	134,141.03
1894	44,610.00	67,537.17	20,358.80	132,505.97
Total	714,104.85	561,421.12	41,072.69	1,316,598.66

RECAPITULATION.

To amount collected, of which there has been deposited in the U. S. Treasury and credited to water fund the sum of	$3,245,202.27
By amount expended from July 1, 1878, to June 30, 1894	1,691,752.98
By amount advanced to Treasurer United States, *ex officio* commissioner sinking fund, District of Columbia, during said period	1,316,598.66
By amount collected on account of water-main tax and deposited to credit of general taxes December 20, 1880	10.75
By amount collected on account of water rent July 29, 1890, and deposited to the credit of general taxes August 13, 1890	2.00
Balance to credit of water fund, District of Columbia, July 1, 1894	236,837.88
Total	3,245,202.27

TABLE 5.—*Houses in the District of Columbia supplied with Potomac water.*

Front feet.	Two stories.						Three stories.						Four stories.						Five stories.					Six stories.		Eight stories.		Thirteen stories.		Grand total.
	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Northwest.	Total.	Northwest.	Total.	Northwest.	Total.	
16	775	7,137	2,801	3,054	2,297	16,064	155	1,955	874	320	305	3,609	6	545	12	2	16	581	17	1			18							20,272
17	72	548	454	128	321	1,423	39	463	178	83	123	886	1	225	19		6	251	14	3			17							2,577
18	73	738	413	175	210	1,609	73	984	266	117	169	1,609	14	330	57	5	33	439	8	1			9							3,666
19	22	241	137	44	36	480	11	514	95	14	97	731	4	240	13	1	12	270	4				4							1,485
20	162	1,028	168	207	292	1,857	89	1,011	182	102	150	1,534	27	742	71	15	14	869	36	5			41							4,301
21	36	168	26	35	40	305	24	211	21	24	25	305	6	154	24	1	16	201	9	2			11							822
22	45	226	40	56	62	429	29	354	27	46	42	478	7	241	16	6	9	279	16				16							1,202
23	18	74	17	15	18	142	27	141	11	13	16	208	8	144	4	1	5	162	11				11							523
24	28	100	17	35	35	215	27	267	18	18	7	277	6	217	9	6	3	241	19	1			20	1	1					754
25	16	139	29	37	21	242	27	296	14	23	20	380	10	313	7	9	6	345	25	1			26							993
26	5	53	8	3	10	79	12	280	3	6	7	308	4	91	4	1		100	16	1			17							504
27	2	19	3	5	5	34	5	38	1	1	2	47	9	51	2	1	1	64	14				14							159
28	12	39	7	2	6	66	9	52	4	3	6	74	1	48	3	1	1	54	7				7							201
29	2	16	4		3	25	2	20	3			25	4	21		1	1	27	5				5							82
30	6	53	7	7	7	80	14	54	4	3	5	80	2	60	1	2	2	67	3				3							230
31		3			1	4	2	21		3	4	29		15	2	1		18	1				1							52
32	4	10		4		18	5	16	5	2	2	30	2	14	1			17	2				2							67
33	4	5	2	3	3	17	5	12	1		1	19	1	10				11	1				1							48
34	3	10	3		3	19	4	12	2		1	19		19	2			21												59
35	3	12	1		6	22	4	27	1		3	28		18				18	2				2							70
36		11	4			15	3	30	2		1	36	1	15		1		17	1											69
37		5			1	6	2	1	1		1	5	1	2			1	4	1				1							16
38	5	2	1		1	9	1	12				13		25	1		1	27	1				1							50
39	4	2				6	2	4	1		2	9		12				12												27
40	6	17	4		5	32	7	29		3		39	3	54				57												128
41		2		1		3		6	1			7		11				11												21
42	1	7			1	9	2	8			1	11		14	1			15						1	1					36
43	1	3		1		5		4	1			5		9				9												19
44		5		1		6		10			1	11	1	9				10												27
45		8				8	2	8			1	11		25		1		26												45
46		2				2		3				3	1	14				15												20
47	1	1				2		2				2		5				5												9
48					1	1	2	6				8		6				6												15
49		2				2							3					3												5
50	1	6			2	9	1	15	2	1	1	20	2	20			1	23						1	1					53
51	1	2				3		1				1		3				3												7
52								3				3		2				2								1	1			6

TABLE 5.—*Houses in the District of Columbia supplied with Potomac water*—Continued.

Front feet.	Two stories.						Three stories.						Four stories.						Five stories.					Six stories.		Eight stories.		Thirteen stories.		Grand total.
	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total	Northwest.	Northeast.	Southwest.	Southeast.	Total.	Northwest.	Total.	Northwest.	Total.	Northwest.	Total.	
53								3				3		2				2												5
54		1				1		1				1		1				1												3
55	1					1		3				3		4				4												8
56							1					1		4				4												5
57							1					1		1				1						1	1					3
58	1					1																								1
60	2					2	2	2				4		9				9												5
61														1				1												1
62	1	5				6	1					1		1				1												8
64							1	1				2		1				1						1	1					4
65														1				1												1
66								1				1		2				2												3
67														1				1												1
68														2				2												2
69								1				1		1				1												2
72								1				1		1				1												2
74														1				1	1			1	1							2
75														5				5	2			2	2							7
76																								1	1					1
80		1				1								1				1												2
82		1				1																								1
88								1				1																		1
90														1				1												1
96	1					1																								1
111																												1	1	1
127	1					1																								1
Total	1,315	10,702	4,146	3,813	3,287	23,263	591	6,796	1,718	782	993	10,880	124	3,764	249	55	128	4,320	216	15	...	...	231	6	6	1	1	1	1	38,702

TABLE 6.—*Miscellaneous water-takers.*

	Georgetown.	Northwest.	Northeast.	Southwest.	Southeast.	Total.
Asylums	1	2	2			5
Armories		7				7
Baseball grounds		2				2
Barber shops	4	105	8	7	6	130
Bakeries	7	47	8	18	9	89
Banks	2	13			2	17
Barrooms	15	251	30	64	36	396
Boarding houses	2	106	34		6	148
Breweries		2	2	1	1	6
Bottling depots	1	7	2	6	1	17
Bookbinderies		4				4
Baths	1	2				3
Brickyards			2		3	5
Colleges	1	12				13
Churches	12	58	5	14	13	102
Cemeteries	1				1	2
Clubrooms		10		1		11
Convents	1	1				2
Car stables	2	6	5	3	4	20
Dining rooms		22				22
Dyehouses	1	14				15
Engine houses	1	5	1	1	2	10
Florists		3				3
Foundries	3	7	3			13
Factories	1				2	3
Gas engines		3	1	1		5
Greenhouses	2	7	5		5	19
Halls	3	46		3	6	58
Hospitals	1	7	1	1	1	11
Hotels	1	39				40
Laundries	1	35	1	4	4	45
Manufactories	1	16	2		1	20
Market houses	1	4			1	6
Mills	5	3	1	2		11
Museums				3		3
Motors		2				2
Orphan asylums		5				5
Offices	14	776	5	6	7	808
Printing houses		14	1			15
Police stations	1	4	2	1	1	9
Photograph galleries		26				26
Restaurants	6	226	3	5	19	259
Railway stations		2	1			3
Riding schools		2				2
Stables, livery	3	54	3	1	5	66
Stables, private	46	660	71	16	34	827
Shops	9	136	7	8	8	168
Steam boilers		57	4	2	2	65
Steam engines	15	68	6	14	5	108
Slaughterhouses		2	3			5
Stores	365	1,064	26	71	101	1,627
Schools, public	6	36	15	4	6	67
Schools, private	1	24	2	2	1	30
Stone yards		7	5	3		15
Steamboat wharves				9		9
Theaters		4				4
Truck company, A			1			1
Truck company, B			1			1
Warehouses	5	40	5	12	6	68
Wood and coal yards	1	18	3	1	7	30
	543	4,073	277	284	306	5,483

These tables may be summarized as follows:

Location.	Houses supplied with Potomac water.		Miscellaneous water-takers.	
	Number.	*Per cent.*	*Number.*	*Per cent.*
Georgetown	2,030	0.0524	243	0.0996
Northwest section	21,486	.5552	4,073	.7428
Northeast section	6,128	.1584	277	.0507
Southwest section	4,650	.1201	284	.0517
Southeast section	4,408	.1139	306	.0558
Total	38,702		5,483	

TABLE 7.—*Comparative statement of revenues.*

Fiscal year—	Water rents.	Water-main assessments.	Taps.	Permits, etc.	Total revenues.
1885	$103,528.20	$20,578.88	$3,402.00	$3,076.09	$145,585.17
1886	124,896.22	36,162.04	5,096.00	3,459.03	169,613.29
1887	138,539.49	47,183.24	6,012.00	4,846.45	196,581.18
1888	171,892.49	34,264.85	4,182.00	4,809.92	215,149.26
1889	189,407.39	46,280.58	5,190.00	5,576.16	246,454.13
1890	197,053.34	45,386.55	5,313.72	6,327.95	254,081.56
1891	209,664.29	50,322.93	5,640.00	6,869.79	272,497.01
1892	220,892.93	68,807.35	5,790.00	6,280.81	301,771.09
1893	235,911.25	70,026.33	7,307.09	7,931.71	321,176.38
1894	245,899.69	86,975.44	4,497.00	1,168.79	338,540.92
1895 (estimated)	255,000.00	90,000.00	5,000.00	1,500.00	351,500.00
1896 (estimated)	265,000.00	95,000.00	5,000.00	1,500.00	366,500.00

Balance in water fund June 30, 1894	$236,837.88
Estimated receipts, 1895	351,500.00
Total	588,337.88
Estimated expenditures, 1895	395,000.00
Estimated available balance June 30, 1895	193,337.88
Estimated receipts, 1896	366,500.00
Estimated total available, 1896	559,837.88

TABLE 8.—*Table of meters.*

Size.	Worthington.	Thomson.	Crown.	Nash.	Buffalo.	Total.
½-inch		1				1
¾-inch	6	1	2	6	1	16
1-inch	16	10	15	4		45
1½-inch	19	16	16	7		58
2-inch	21	10	11	5		47
3-inch	13	2	8	1		24
4-inch	4	2				6
6-inch		1	3	1		5
Total	79	43	55	24	1	202

REPORT OF SUPERINTENDENT OF SEWERS.

OFFICE OF THE ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA.
Washington, October 26, 1894.

SIR: I have the honor to submit the following report of the operations of the sewer division for the year ending June 30, 1894, accompanied by estimates of funds required for construction and maintenance for the year ending June 30, 1896.

Under the appropriation for cleaning and repairing sewers and basins there was performed work as follows: 95,984 linear feet of pipe sewers and 21,991 linear feet of brick sewers were cleaned, from which were removed 6,195 cubic yards (estimated) of sediment, consisting of street detritus and sludge; 1,377 linear feet of pipe sewers were taken up and relaid; 449 linear feet of brick sewers were repaired; 221 minor repairs to sewers were made; 12 manholes were constructed, 346 were repaired, 76 new covers were placed in position, and 7,016 were cleaned; 1 receiving basin was constructed, 436 were repaired, 20 had new tops placed on, 13 were reconstructed, 9 were abandoned, and 68,188 were cleaned, from which were removed 11,050 cubic yards (estimated) of street detritus.

Under the appropriation for relief sewers and replacing obstructed sewers there was constructed: Under contract, 17,209.7 linear feet of pipe sewers, varying from 12 to 24 inches in diameter, and by day labor 8,794 linear feet of pipe sewers, varying from 8 to 24 inches in diameter, 1,264 linear feet of 6-inch lateral connections, 48 manholes, and 2 basins.

The work performed under the permit system included the construction of 12,615 linear feet of pipe sewers, varying between 8 and 24 inches in diameter, and 89 manholes, divided among 89 jobs, averaging in cost per job $306.477 in length of sewer per job 141.753 linear feet, and in cost per linear foot $1.415. In addition there was constructed in First street NW., between V and W streets, 530 linear feet of 5.25

feet diameter circular concrete sewer, and 304.5 linear feet of 2.75 by 3.125 feet egg-shape concrete sewer in connection with job No. 50 permit, at a cost of $9,316.69.

Under the compulsory system there was constructed 18,628 linear feet of pipe sewers, varying between 18 and 24 inches in diameter, 105 manholes, and 5 receiving basins, divided among 49 jobs, averaging in cost per job $667.899, in length of sewer per job 380.163 linear feet, and in cost per linear foot $1.76.

Sewers were constructed at whole cost to applicants aggregating 935 linear feet, varying in sizes between 6 and 12 inches, 15 manholes, and 4 basins, divided among 16 jobs, averaging in cost per job $68.84.

Under the appropriation for main and pipe sewers main sewers were constructed under contract as follows: Seventh street SE., between E and G streets; Olive street NW., between Twenty-ninth street and Rock Creek; Maine avenue SW., between Third and Four-and-a-half streets; Fourteenth street SW., between Maryland avenue and D street; Fourteenth street SE., between B and E streets; F street NE., between Fourteenth street and Tennessee avenue; Twenty-ninth street NW., between Olive street and Dunbarton avenue; across reservation 55; L street NE., between Third and Sixth streets; Four-and-a-half street SW., between Maine and Maryland avenues and reservation D; and L street NE., between North Capitol and First streets. There was also constructed 4,755 5 linear feet of pipe sewers, varying from 18 to 24 inches in diameter. By day labor there was constructed 20,897 linear feet of pipe sewers, varying from 8 to 24 inches in diameter, 125 manholes, and 17 receiving basins.

Under the appropriation for the construction of suburban sewers the following main sewers were constructed under contract: Woodley road, from Connecticut avenue to Rock Creek; in Piney Branch valley; across subdivision of Long Meadows and on Trinidad avenue; Spring road; Fillmore street, Anacostia, between Jackson street and the Anacostia River, and the outlet section of the main Anacostia sewer was completed. There was also constructed 3,038.6 linear feet of pipe sewers, varying from 18 to 24 inches in diameter. By day labor there was constructed 5,821.6 linear feet of pipe sewers, varying from 8 to 24 inches in diameter (this includes 775.6 linear feet of 24-inch diameter concrete sewer); 360 linear feet of 4 by 6 feet diameter concrete sewer; 8 linear feet of 2.75 by 4.125 feet egg-shape brick sewer; 23 linear feet of bell section on Fourteenth street extended, between Spring and Piney Branch roads; 170.1 linear feet of 3.25 by 4.875 feet egg-shape brick sewer on Trinidad avenue, between Florida avenue and M street; 13.5 linear feet of 3 by 4.5 feet and 16.5 linear feet of 4 by 6 feet egg-shape brick sewer on Spring road, between Thirteenth street and Rock Creek church road; 35 manholes, and 28 receiving basins.

For the proper drainage of the Reform School for Girls there was constructed, under contract No. 1912, with James McCandlish, 1,871.5 linear feet of 8-inch-diameter pipe sewer, at a cost of $1,445.10. The cost of this sewer was paid from the appropriation for the above-named institution.

The following work was performed for the surface division and charged to appropriations for improvements or repairs to streets: 516 linear feet of pipe sewer was constructed, varying from 6 to 12 inches in diameter, 17 receiving basins were constructed, and 10 receiving basins were reconstructed and adjusted to conform to new lines and grades of streets being improved.

Of the Easby's Point main intercepting sewer there has been constructed 1,135.5 linear feet of 11.25 feet diameter D-shape sewer and 730 linear feet of 11.25 feet diameter circular sewer.

Under the appropriation for automatic siphons 53 basins were constructed under contract, and by day labor there were 8 basins constructed.

Observations of rainfall and sewer discharge have been continued and it is expected that this work will be completed, so far as it requires special expenditure, during the present fiscal year.

Estimates of funds required for construction, maintenance, and office work for the sewer division for the fiscal year ending June 30, 1896:

Cleaning and repairing sewers and basins	$50,000
Relief sewers and replacing obstructed sewers	50,000
Permit sewers and assessment sewers	50,000
Main and pipe sewers:	
Georgia avenue SE., between Fourteenth and Sixteenth streets	12,100
E street NE., between Thirteenth street and Tennessee avenue	5,700
Extension of Boundary sewer	310,500
Pipe sewers	50,000
Basins	8,000
	386,300

Suburban sewers:	
Completion of Rock Creek intercepting sewer	$60,000
Linden street NW., between Wilson and Pomeroy streets	2,200
Morris road, Anacostia	3,200
Brookland system	74,764
Quincy street NE., between Third and Fourth streets	1,800
Fifth street NE., between U and Albany streets	4,800
Lyon's tract between Park Drive and Rock Creek	1,660
Lincoln avenue from R street northward	5,968
Massachusetts avenue between Kalorama avenue and Rock Creek	20,572
Meridian avenue between Huron and Erie streets	4,262
Anacostia sewer at south end of bridge	1,641
Brightwood Park system	77,450
Sixteenth street between Grant and Kenesaw streets	4,095
West Petworth system	3,200
Eckington Valley between Florida avenue and T street	34,000
Petworth sewer system	168,000
Flagler Place sewer	15,000
Upper Piney Branch system	109,890
Grassland avenue sewer	293,000
Kenesaw avenue sewer	20,000
Pipe sewers	265,000
Basins	10,000
	1,180,502
Automatic flush tanks	10,000
Condemnation of rights of way	10,000
Sewer division, salaries:	
Superintendent	2,400
General inspector	1,600
One assistant engineer	1,800
Two assistant engineers, at $1,500 each	3,000
One leveler	1,400
One draftsman	1,200
Four rodmen, at $780 each	3,120
Four axmen, at $650	2,600
One clerk	1,400
Two clerks, at $1,200 each	2,400
One permit clerk	1,600
One assistant permit clerk	1,000
Two sewer tappers, at $1,000 each	2,000
Two inspectors of property, at $936 each	1,872
	27,392

The sewers proposed for Georgia avenue and for E street are required to serve sections of the city which are growing and require drainage. The extension of the Boundary sewer from its present outlet to a point near the intersection of B street SE., with high water in the Anacostia River is necessary to avoid the flooding of private lands in the vicinity of the existing discharge end of the sewer. The suburban sewers in the above list are all necessary for the purpose of providing sewerage facilities to growing communities. Tables numbered from 1 to 7 herewith are as follows:

Table 1 shows contract work under the appropriation for main and pipe sewers and work done on the main intercepting sewer.

Table 2 shows contract work under the appropriation for the construction of suburban sewers.

Table 3 shows contract work under the appropriation for relief sewers and replacing obstructed sewers.

Table 4 shows work done by day labor under the following appropriations: Main and pipe, construction of suburban sewers, relief sewers, and replacing obstructed sewers, automatic siphons, and miscellaneous appropriations.

Table 5 shows sewers laid under the permit system, the compulsory system, and at whole cost to applicant.

Table 6 is a list of overseers, inspectors, and other employés paid from the various appropriations for sewer work.

Table 7 shows the comparative cost of sewers, basin connections, and basins.

Very respectfully,

D. E. McComb,
Superintendent of Sewers.

The Engineer Commissioner of the District of Columbia.

Sewers laid (contract work).

TABLE 1.—MAIN AND PIPE SEWERS—APPROPRIATION 1893–'94.

No. of contract.	Contractor.	Location.	Size of sewer.	Length of sewer.	Contract price (per linear foot).	Voucher, less material furnished.	Material furnished contractor.		Cost of inspection.	Total cost.
							Chargeable.	Not chargeable		
				Lin. feet.						
1796	M. F. Talty	Seventh, between E and G streets SE.	2.5 by 3.75 feet	79.1	$7.50	$3,031.87	$753.30	$12.89	$373.60	$4,171.66
			2.25 by 3.375 feet	526.4	5.98					
		Olive, between Twenty-ninth street and Rock Creek.	2.5 by 3.75 feet	822.7	7.90	6,105.93	1,115.80	21.43	823.00	8,066.16
1797	E. G. Gummel	Fifth, between B and East Capitol streets SE.	24 inches, pipe	394	1.94	1,832.87	140.30	469.35	185.43	2,127.95
			18 inches, pipe	339.4	1.51					
		B, between Sixth and Seventh streets SE.	18 inches, pipe	123.8	1.51	199.53	23.00	51.68	26.18	300.39
		Sixth, between B and East Capitol streets SE.	21 inches, pipe	392.8	1.73	1,418.53	149.50	408.60	188.69	2,165.32
			18 inches, pipe	418.4	1.51					
		Seventh, between D and E streets SE.	24 inches, pipe	400.7	1.94	769.04	86.25	324.77	111.40	1,291.46
		D, between Eleventh and Twelfth streets NE.	18 inches, pipe	318.7	1.51	501.24	51.75	131.58	101.20	785.77
		Twelfth, between D and E streets NE.	24 inches, pipe	48	1.94	1,174.88	105.80	344.70	178.00	1,803.38
			21 inches, pipe	489.9	1.73					
			18 inches, pipe	1.5	1.51					
		B, between Kentucky avenue and Twelfth street SE.	18 inches, pipe	434.6	1.51	677.23	74.75	174.21	87.00	1,013.19
		Sixth, between L and M streets NE.	18 inches, pipe	320.3	1.51	556.30	55.20	161.09	62.00	834.59
		E, between Thirteenth and Fourteenth streets SE.	24 inches, pipe	24	1.94	1,324.70	132.25	416.19	154.50	2,027.64
			21 inches, pipe	367.2	1.73					
			18 inches, pipe	381.6	1.51					
1806	B. J. Coyle	Maine avenue, between Third and Four-and-a-half streets SW.	2.5 by 3.75 feet	667.7	6.10	3,567.72	688.46	19.03	409.80	4,685.01
		Fourteenth, between Maryland avenue and D street SW.	2 by 3 feet	454.5	5.65	2,087.70	540.50	12.89	268.30	2,909.39
1868	Geo. S. Good & Co	Fourteenth, between B and E streets SE.	3.75 by 5.625 feet	532.6	7.75	11,163.09	2,692.85	37.47	1,407.27	15,300.68
			3.5 by 5.25 feet	470	7.50					
			3.25 by 4.875 feet	491.6	7.40					
			3 by 4.5 feet	323.6	7.20					
1898	James McCandlish	F, between Tennessee avenue and Fourteenth street NE.	2 by 3 feet	411.85	4.76	1,498.98	498.42	14.30	234.30	2,246.00
1900	Hussey & Brown	Twenty-ninth, between Olive and Dunbarton streets NW.	2.5 by 3.75 feet	642.7	7.20	2,829.00	906.80	7.33	431.20	4,174.33
		Across reservation No. 55	2.75 feet, diameter	161.5	7.50	3,987.78	529.76	6.89	*611.60	5,136.03
				371.1	8.90					

* Cost of inspection includes $102 paid out of appropriation for 1895.

Sewers laid (contract work)—Continued.

TABLE 1.—MAIN AND PIPE SEWERS—APPPOPRIATION 1893-'94—Continued.

No. of contract.	Contractor.	Location.	Size of sewer.	Length of sewer.	Contract price (per linear foot).	Voucher, less material furnished.	Material furnished contractor.		Cost of inspection.	Total cost.
							Chargeable.	Not chargeable.		
				Lin. feet.						
1907	Buckley & Larguey	L, between Third and Sixth streets NE.	3 by 4.5 feet	300.1	6.15	$4,090.56	$1,440.50	$26.86	$589.00	$6,146.92
			2.75 by 4.125 feet	302.3	5.60					
			2.25 by 3.375 feet	396	4.75					
1909	Hussey & Brown	Four-and-a-half, between Maine and Maryland avenues SW., and reservation "D"	2.25 by 3.375 feet	238.7	4.75	1,792.76	725.54	22.80	*313.70	2,854.80
			2 by 3 feet	335.4	3.95					
1916	E. G. Gummel	Reservation "D"	24 inches, pipe	300.6	1.63	491.98	56.00	228.45	†68.40	844.83
1918	M. F. Talty	L, between North Capitol and First streets NE.	4 feet, diameter	172.5	6.00	891.36	173.64	6.44	‡172.00	1,243.44

MAIN INTERCEPTING SEWER—APPROPRIATION 1892-'93.

1794	H. L. Cranford	Section 1	11.25 feet, D shape	1,135.5		$47,230.25	$8,014.00	$14.16	$1,847.79	$57,106.20
		Section 2	11.25 feet, circular	730		25,481.58	3,156.00	2.85	957.71	29,598.14

* Cost of inspection includes $14 paid out of appropriation for 1895.
† Cost of inspection includes $24 paid out of appropriation for 1895.
‡ Cost of inspection includes $92 paid out of appropriation for 1895.

TABLE 2.—SUBURBAN SEWERS—APPROPRIATION 1893–'94.

1797	E. G. Gummel	Block 3, Trinidad	21 inches, pipe	196.5	$1.73	$218.39	$32.20	$107.06	$5.26	$362.91
		Steuben, between Sherman and Brightwood avenues.	18 inches, pipe	571.6	1.51	826.83	92.00	233.11	51.81	1,203.75
		U, between First street and Le Droit avenue	18 inches, pipe	259.3	1.51	382.88	48.30	101.49	8.33	541.00
		Woodley road, between Belmont avenue and Nineteenth street.	24 inches, pipe	643.8	1.94	1,154.53	144.90	530.18	32.00	1,861.61
		Jefferson, between Polk and Pierce streets, Anacostia.	18 inches, pipe	173.6	1.51	262.67	29.90	75.25	18.33	386.15
		Nicholas avenue, between Jefferson and Pleasant streets, Anacostia.	21 inches, pipe	114.3	1.73	200.39	20.70	70.81	24.83	316.73
1799	James McCandlish	Woodley road, between Connecticut avenue and Rock Creek.	2.5 by 3.75 feet	578.2	5.89	3,824.80	758.14	21.31	216.06	4,820.31
1805	John E. Lyons	Piney Branch Valley	2.75 by 4.125 feet	743.2	6.13	5,235.61	1,148.90	5.84	258.00	6,648.35
1806	B. J. Coyle	Long Meadows and Trinidad avenue NE	3.75 by 4.875 feet	1,231	7.25	7,534.22	1,528.25	34.97	395.50	9,492.94
1868	Geo. S. Good & Co	First street extended between V and W streets NW.*	5.25 feet, diameter	40.8	9.75		450.69	13.79		464.48
1868	do	Spring road	3.75 by 5.625 feet	1,221.1	7.50	17,043.31	5,714.18	43.10	1,260.20	24,060.79
			3.5 by 5.25 feet	361.8	7.25					
			3.25 by 4.875 feet	817.6	7.20					
			3 by 4.5 feet	642.8	7.15					
1898	James McCandlish	Fillmore, between Jackson and river, Anacostia.	6 feet, diameter	549.9	9.13	4,011.62	1,077.02	12.78	296.62	5,398.08
		Q, between Lincoln avenue and First street NE.	21 inches, pipe	548.7	1.55	950.73	117.30	267.64	†83.00	1,418.67
1899	John E. Lyons	Le Droit avenue, between Florida avenue and S street.	24 inches, pipe	410.8	1.81	739.38	96.90	234.74	91.80	1,162.82
1917	E. G. Gummel	Ontario avenue, between Superior and Erie streets.	21 inches, pipe	120	1.69	188.47	20.00	54.10	‡36.50	299.07

SUBURBAN SEWERS—APPROPRIATION 1892–'93.

1795 §	M. F. Talty	Anacostia main sewer	8 feet, D shape	86		$9,122.03	$1,218.70	$9.45	$742.70	$11,092.88
			6 feet, diameter	362						

* In connection with job No. 17, permit work.
† Cost of inspection includes $44 paid out of appropriation for 1895.
‡ Cost of inspection includes $32 paid of appropriations for 1895.
§ Contract No. 1795 was extended into the fiscal year 1894.

Sewers laid (contract work)—Continued.

TABLE 3.—RELIEF SEWERS AND REPLACING OBSTRUCTED SEWERS—APPROPIATION 1893–'94.

No. of contract.	Contractor.	Location.	Size of sewer.	Length of sewer.	Contract price (per linear foot).	Voucher, less material furnished.	Material furnished contractor.		Cost of inspection.	Total cost.
							Chargeable.	Not chargeable.		
				Lin. feet.						
1797	E. G. Gummel	Fourth, between B and C streets NE.	24 inches, pipe	170.9	$1.94	$1,148.03	$117.30	$366.08	$132.90	$1,764.31
			21 inches, pipe	129.4	1.73					
			18 inches, pipe	305.1	1.51					
		Delaware avenue, between E and F streets NE.	24 inches, pipe	476.4	1.94	1,004.66	95.45	398.96	96.86	1,595.93
		T, between Fifteenth and New Hampshire avenue NW.	18 inches, pipe	748.2	1.51	1,493.31	139.11	294.20	117.60	2,044.22
		G, between Sixth and Seventh streets SE.	18 inches, pipe	317.1	1.51	474.52	54.05	92.30	32.20	653.07
		G, between Seventh and Eighth streets SE.	18 inches, pipe	294.2	1.51	476.37	50.60	85.01	32.30	644.28
		N, between Four-and-a-half and River SW.	24 inches, pipe	187.9	1.94	1,429.98	144.90	415.07	166.90	2,156.85
			21 inches, pipe	326.8	1.73					
			18 inches, pipe	278.9	1.51					
		Towpath Canal, between Rock Creek and Thirty-first street NW.	24 inches, pipe	285.2	1.94	1,556.10	239.20	506.18	134.25	2,435.73
			18 inches, pipe	867.8	1.51					
		Eighth, between Maryland and Massachusetts avenues NE.	24 inches, pipe	1,990.6	1.94	3,693.64	303.60	984.32	173.25	5,154.81
1896	E. G. Gummel	Eighth, between E and I streets SE.	12 inches, pipe	1,238.5	1.15	1,473.88	157.72	181.97	183.60	1,997.17
		Third, between D and E streets SE.	21 inches, pipe	687.6	1.63	1,138.76	123.12	356.40	80.75	1,699.03
		Fourteenth, between T and V streets NW.	12 inches, pipe	779.3	1.15	875.93	96.10	130.98	80.40	1,183.41
		C, between Ninth and Tenth streets SE.	24 inches, pipe	391.8	1.85	773.53	85.50	270.57	69.30	1,198.90
		First, between E and G streets SE.	24 inches, pipe	406	2.25	1,005.20	95.76	329.24	80.95	1,511.15
		C, between Third and Canal streets SW.	15 inches, pipe	774.3	1.25	1,179.87	143.64	221.39	138.80	1,683.70
1897	Buckley & Larguey	C, between Ninth and Tenth streets SW.	21 inches, pipe	485.6	1.80	855.54	95.76	232.88	108.45	1,292.63
		K, between Third and Four-and-a-half streets SW.	21 inches, pipe	307	1.80	976.29	113.76	210.39	85.60	1,386.04
			18 inches, pipe	308.25	1.60					
		Tenth, between L and M streets NW.	18 inches, pipe	544.45	1.00	854.20	93.48	186.87	76.40	1,210.95
		C, between Sixth and Seventh streets NW.	18 inches, pipe	352.2	1.55	495.88	58.14	140.52	39.10	733.64
		Pennsylvania avenue, between Sixth and Seventh streets NW.	21 inches, pipe	423.8	2.00	807.67	84.36	224.05	72.00	1,188.08
		Tenth street, between B street and South Carolina avenue SE.	24 inches, pipe	1,024.6	2.10	†2,151.80	223.58	716.81	*215.60	3,307.79
1898	James McCandlish	Eleventh, between E and Water streets SW.	24 inches, pipe	209.5	2.20	1,338.61	145.92	345.31	‡179.00	2,008.84
			18 inches, pipe	704.9	1.25					
1899	John E. Lyons	R, between New Jersey avenue and Fourth street NW.	24 inches, pipe	395.8	1.85	701.50	78.00	237.45	116.25	1,133.20
		New Jersey avenue, between K and L streets NW.	18 inches, pipe	888	1.45	1,263.32	150.48	336.82	129.87	1,880.49

1900	Hussey & Brown.....	Third, between K and L streets NW	24 inches, pipe....	83.2	2.30	1,545.43	147.06	367.37	113.80	2,173.66
		Q, between Sixth and Seventh streets NW....	18 inches, pipe....	871.7	1.45					
			24 inches, pipe....	494.7	2.00	924.70	98.67	363.50	§ 88.00	1,474.87

AUTOMATIC SIPHONS—APPROPRIATION 1893-'94.

1913	James McCandlish ...	Various locations.....	Flushing basins ..	53	$122.00	$5,479.79	$993.23	$321.32	‖ 542.00	$7,336.34

* Cost of inspection includes $124 paid out of appropriation for 1895.
† Amount paid contractor includes $26.15 cost of repairs to pavement.
‡ Cost of inspection includes $102 paid out of appropriation for 1895.
§ Inspection paid out of appropriation for 1895.
‖ Cost of inspection includes $506 paid out of appropriation for 1895.

TABLE 4.—*Work done by days' labor under*

APPROPRIATION FOR

No. of order.	Location.	Pipe sewers laid (length in feet).						
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
44	Connecticut avenue, between Q and R streets NW.	9		12				
12	Delaware avenue, between M and N streets SW.			594				
22	Delaware avenue, between K and L streets SW.			131				
104	Kentucky avenue, between East Capitol and B streets SE.		148	147	297			
122	Kentucky avenue, between Pennsylvania and Georgia avenues SE.			6	198			
21	Massachusetts avenue, between Fourth and Fifth streets NW.			42				
31	Massachusetts avenue and Second street NE.	60						
2	New York avenue, between Fourteenth and Fifteenth streets NW.	15						
47	New York avenue, between North Capitol and First streets NE.				280	102		
96	New York avenue, between Fourteenth and Fifteenth streets NW.			129				
92	New Hampshire avenue, between F and G streets NW.			176				
119	Pennsylvania avenue, between Fifteenth street and Kentucky avenue SE.					387		
50	Vermont avenue and O street NW.			9				
91	Franklin, between New Jersey avenue and Fifth street NW.			320				
106	Florence and G streets NE			18				
107	Liberty street (square 234)		150					
54	Mill and P streets and Twenty-eighth and O streets NW.	3		45				
95	Olive street sewer (mouth of)			42				
87	Potomac, between Prospect and N streets NW.			147				
11	Quander street (square 743)			599				
68	South Capitol, between N and O streets.			577				
6	A, between Seventh and Ninth streets SE.			42				
41	B street and Tennessee avenue NE.			2				
120	B street, between Sixth and Seventh streets SE.				291			
17	D street, between Second and Massachusetts avenue NE. Massachusetts avenue, between D and Third streets NE.			373				
97	D, between Twenty-sixth and River, and Twenty-sixth, between D and E streets NW.		36	227		344		177
32	E, between Ninth and Tenth streets SE.			262				
110	E, between Twenty-sixth and Potomac River NW.							375
7	F, between Twenty-third and Twenty-sixth streets NW.			165				
3	G, between Eighteenth and Nineteenth streets NW.			446				
20	K, between North Capitol and First streets NE.	3						
28	K, between New Jersey avenue and First street NW.				36			
24	L, between Twenty-first and New Hampshire avenue NW.			9		69		
35	L, between First and Delaware avenue SW.			242				
53	L, between Eleventh and Twelfth; Eleventh, between K and L, and Georgia avenue, between Tenth and Eleventh streets SE.	101		278	417			
58	L, between Sixth and Seventh streets NE.			12				
71	M, between Half and Canal streets SW.			240	66			
69	O, between South Capitol and Half streets SE.				440			

various sewer appropriations, 1893–'94.

MAIN AND PIPE SEWERS.

Manholes built.	Basins built.	Branches used.	Cost of materials.	Cost of labor.	Total cost.	Remarks.
.....	2	.....	$55.60	$55.28	$110.88	
3	.....	21	262.89	365.45	628.34	
.....	.....	1	46.02	120.24	166.26	
3	.....	8	284.59	460.36	744.95	
.....	.....	.....	105.52	347.98	453.50	
.....	1	.....	45.97	46.25	92.22	
.....	1	.....	28.19	20.99	49.18	
.....	1	.....	20.78	28.00	48.78	
3	.....	11	273.18	456.27	729.45	
.....	2	.....	98.96	134.60	233.56	
1	.....	10	70.64	150.17	220.81	
2	.....	.....	260.41	635.64	896.05	
.....	1	.....	35.55	21.86	57.41	
3	.....	40	164.34	277.23	441.57	
.....	1	.....	23.02	60.75	83.77	
1	.....	19	58.53	140.37	198.90	
.....	3	.....	111.79	106.91	218.70	
.....	.....	.....	22.64	44.24	66.88	Constructing flume.
.....	.....	6	49.80	122.36	172.16	
3	1	28	296.83	448.51	745.34	
3	.....	17	260.59	496.10	756.69	
.....	2	.....	86.11	103.73	189.84	
.....	1	.....	32.89	39.40	72.29	
2	.....	6	180.58	416.06	596.64	
2	.....	8	163.73	278.92	442.65	
4	1	20	620.41	1,545.96	2,166.37	
1	.....	8	108.55	222.44	330.99	
2	.....	.....	415.87	757.23	1,173.10	
.....	8	.....	318.33	252.07	570.40	
3	.....	13	224.47	474.94	699.41	
.....	1	.....	10.72	14.06	24.78	
.....	.....	.....	18.39	44.34	62.73	
1	.....	3	84.68	288.27	372.95	
3	.....	7	137.45	192.76	330.21	
5	.....	17	423.15	693.88	1,117.03	
.....	.....	.....	5.12	12.74	17.86	
1	.....	15	135.41	223.89	359.30	
3	.....	1	283.48	476.95	760.43	

TABLE 4.—*Work done by days' labor under various*

APPROPRIATION FOR MAIN

No. of order.	Location.	Pipe sewers laid (length in feet).						
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
78	O, between Thirty-fourth and Thirty-fifth streets NW.		249	48				
102	O, between Eleventh and Twelfth streets SE.			194				
51	Q, between Thirtieth and Thirty-first streets and Cook Park.			18				
82	Q, between Thirty-second and Thirty-third streets NW.			61				
34	S, between Sixth and Seventh streets NW.			87				
8	T, between Thirty-third and Thirty-fourth streets NW.			27	231			
83	T, between Thirty-fourth and Thirty-fifth streets NW.			322				
5	First, between M and N streets SW.			303				
15	First, between K and L streets SW.			241				
55	First and L streets SW			3				
64	First, between N and O streets SE			517				
100	First, between L and M, and L, between First street and Delaware avenue SW.			296	136			
115	First and O streets SW			27				
117	First and M streets NW		84					
77	Second, between I street and Virginia avenue SE.			398				
4	Third, between I and K streets and square 750.		178	164	240			
9	Third, between H and I streets NE.			233				
16	Fourth, between L and M streets NE.			224				
61	Fourth and K streets SE.			21				
61	Sixth and L streets SE.					48		
29	Fifth and S streets NW. (NW. corner).	9						
36	Fifth and S streets NW. (SW. corner).	9						
39	Fifth and Sixth, between A and B, and A, between Fifth and Sixth streets NE.		385	336				
76	Fifth, between D and E streets SE.			225				
52	Sixth, between I and K streets NE.			182				
88	Sixth, between L and M streets NE.			174				
116	Sixth, between Missouri and Pennsylvania avenues NW.		24					
23	Seventh and A streets SE			15				
56	Seventh and Pennsylvania avenue NW.			3				
80	Seventh, between North Carolina avenue and C street SE.			85				
112	Seventh and D streets NE.			9				
89	Ninth, between B and C streets NE.			231				
38	Eleventh, between I and K streets SE.			229				
43	Eleventh, between H and I streets NE.			15				
45	Eleventh, between C and D streets NE.		181		192			
49	Eleventh, and B streets SE				12			
90	Eleventh and Georgia avenue, SE.			3				
62	Twelfth, crossing S street NW.							57
81	Twelfth, between A and B streets NE.			363				
30	Thirteenth and E streets SE.							
75	Thirteenth street and Tennessee avenue NE.			51				
99	Thirteenth, crossing H street NE.						57	
59	Fourteenth and G streets NE			3				
60	Fourteenth and E streets SE.			54				
66	Fourteenth and C streets SE			16				
72	Fourteenth between C street and Ohio avenue NW.	9		3				
73	Fourteenth, between D and E streets SE.			296				

sewer appropriations, 1893–'94—Continued.

AND PIPE SEWERS—Continued.

Manholes built.	Basins built.	Branches used.	Cost of materials.	Cost of labor.	Total cost.	Remarks.
2	.....	9	$116.38	$321.41	$437.79	
1	.....	4	82.19	141.84	224.03	
.....	2	.....	50.35	62.74	113.09	
1	.....	2	45.61	101.82	147.43	
.....	2	.....	98.33	110.07	208.40	
1	1	.....	181.54	258.81	440.35	
3	.....	14	170.99	296.10	467.09	
2	.....	.....	150.19	218.07	368.26	
1	.....	8	99.74	137.87	237.61	
1	1	.....	51.83	65.86	117.69	27 linear feet 6-inch pipe connection constructed.
3	.....	14	233.16	437.77	670.93	
3	.....	15	217.08	262.55	479.63	
.....	.....	.....	11.46	10.93	22.39	Connecting basin.
.....	.....	.....	21.37	33.94	55.31	
3	.....	7	195.13	408.10	603.23	
4	.....	33	342.99	719.19	1,062.18	
2	.....	4	122.64	228.31	350.95	
1	.....	7	91.85	179.83	271.68	
.....	2	.....	72.12	77.90	150.02	
1	.....	.....	53.83	98.80	152.63	
.....	1	.....	10.40	24.62	35.02	Basin rebuilt.
.....	1	.....	16.64	21.49	38.13	
4	.....	19	256.92	590.03	846.95	
1	.....	3	101.48	213.67	315.15	
2	.....	1	95.89	151.35	247.24	
1	.....	.....	71.76	150.16	221.92	
.....	1	.....	24.06	41.84	65.90	
.....	1	.....	38.91	44.59	83.50	
.....	1	.....	32.41	31.33	63.74	
2	.....	2	59.17	101.39	160.56	
.....	1	.....	19.76	49.51	69.27	
2	.....	6	99.15	189.25	288.40	
1	.....	8	101.69	177.20	278.89	
.....	1	.....	28.08	26.62	54.70	
2	.....	11	185.31	388.52	573.83	
.....	.....	.....	7.16	16.24	23.40	Connecting sewers.
.....	1	.....	33.41	48.78	82.19	
.....	.....	.....	65.67	133.81	199.48	
3	.....	.....	184.07	315.36	499.43	
.....	1	.....	24.16	74.00	98.16	90 linear feet 6-inch pipe connection constructed.
.....	1	.....	47.41	55.81	103.22	
1	.....	.....	66.84	149.13	215.97	
.....	1	.....	33.93	39.94	73.87	
.....	2	.....	82.62	80.50	163.12	
.....	1	.....	37.99	42.80	80.79	
.....	2	.....	47.79	70.01	117.80	
1	.....	4	122.89	225.70	378.59	

TABLE 4.—*Work done by days' labor under*

APPROPRIATION FOR MAIN

No. of order.	Location.	Pipe sewers laid (length in feet).						
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
84	Fourteenth, between B and D streets, SE.			84				
86	Fourteenth and South Carolina avenue SE.			9				
101	Fourteenth and F streets NE			15				
103	Fourteenth and Emerson streets NE.			3				
105	Fourteenth and G streets NE.			39				
111	Fifteenth and G streets NE.			48				
121	Fifteenth, between Pennsylvania and Georgia avenues SE.			66				
79	Twenty-second, between K and L streets NW.			209				
109	Twenty-third, between Upper Water and New York avenue NW.					349		57
85	Twenty-sixth, between H and I and H, between Twenty-fifth and Twenty-sixth streets NW.		164		175	394		
94	Twenty-seventh, between I and Virginia avenue, and Virginia avenue between Twenty-sixth and Twenty-seventh NW.			246	84			
48	Twenty-eighth, between Olive and N streets NW.			108				
98	Twenty-eighth, and Dunbarton avenue NW.			6				
18	Twenty-ninth, between Pennsylvania avenue and C. & O. Canal, and Pennsylvania avenue, between Twenty-eighth and Twenty-ninth streets, NW.			237	361			
67	Alley, square 4	9						
70	Alley, square 153			27				
93	Alley, square 176		155					
65	Alley, square 237		3					
42	Alley, square 343			244	87			
25	Alley, square 361	42						
1	Alley, square 362		6					
74	Alley, square 422	3						
19	Alley, square S. 475	24						
113	Alley, square 490		182					
46	Alley, square 534		3					
40	Alley, square 589	146		148				
57	Alley, square 633			9				
118	Alley, square 777	99						
63	Alley, square 1027	84						
	Avon Place, between U and Irving streets, and U, between Avon Place and Thirty fifth street, NW.			98				
	Total	625	1,948	12,365	3,543	1,693	57	666

various sewer appropriations, 1893–'94—Continued.

AND PIPE SEWERS—continued.

Manholes built.	Basins built.	Branches used.	Cost of materials.	Cost of labor.	Total cost.	Remarks.
.....	3	.....	$124.31	$150.17	$274.48	
.....	1	.....	36.04	34.87	70.91	
.....	2	.....	72.87	86.67	159.54	Cost of labor includes $4, cost of moving gas lamp.
.....	1	.....	16.71	33.37	50.08	
.....	1	.....	30.28	61.12	91.40	
.....	1	.....	33.03	62.31	95.34	
.....	.....	.....	21.05	104.49	125.54	
1	.....	10	82.73	158.87	241.60	
2	.....	2	297.02	631.32	928.34	
4	.....	26	454.54	580.27	1,034.81	
2	.....	6	154.69	305.38	460.07	
.....	4	.....	172.70	183.03	355.73	
.....	1	.....	35.52	63.07	98.59	
4	.....	26	383.27	689.67	1,072.94	
.....	1	.....	15.97	24.00	39.97	
1	1	.....	44.08	48.86	92.94	
1	.....	13	58.15	152.85	211.00	
.....	1	.....	13.33	17.50	30.83	
3	.....	20	194.37	517.22	711.59	
.....	1	.....	23.13	39.62	62.75	
.....	1	.....	20.39	21.23	41.62	
.....	1	.....	13.26	20.87	34.13	
.....	1	.....	19.28	27.24	46.52	
3	.....	7	91.88	199.08	290.96	
.....	1	.....	15.95	19.12	35.07	
4	.....	18	150.39	222.54	372.93	
.....	1	.....	11.46	19.00	30.46	
.....	1	.....	37.15	65.12	102.27	
.....	3	.....	67.63	127.46	195.09	
2	.....	1	92.75	144.43	237.18	Work begun fiscal year 1893.
125	77	559	12,913.46	23,043.51	35,956.97	

TABLE 4.—*Work done by days' labor under*

APPROPRIATION FOR

No. of order.	Location.	Pipe sewers laid (length in feet).							24 inches concrete.	4 by 6 feet concrete.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.		
14	Champlain avenue, between Erie and Superior streets.			48						
39	Howard avenue, between Center and Fourteenth streets.						535			
40	....do....			471						
41	Howard avenue, between Center and Brown streets.			117						
35	Le Droit avenue, between S and Seaton streets.					216	45			
6	Trinidad avenue and M streets NE.			3						
26	Trinidad avenue, between Florida avenue and M street NE.		24							
37	Trinidad avenue, Long Meadows subdivision.									
7	Clifton street (block 30, Columbia Heights).			6						
36	Center, between Howard avenue and Fourteenth street.								775.6	
25	Fillmore, between Washington and Jefferson streets.		185							
23	Jackson, between Monroe and Fillmore streets.			230	207					
28	Monroe, between Washington and Jefferson streets.		267							
29	Monroe, between Johnson and Buchanan streets.	163	299							
30	Pomeroy, between Linden and Larch streets.		171	153						
8	Piney Branch road, north of Howard avenue.			9						
34	Rock Creek Church road, between Spring road and New Hampshire avenue.			36	15					
19	Spring road, between Thirteenth and Fourteenth streets.						15			
21	Spring road and Rock Creek Church road.			48						
27	....do....							12		
33	Truxton circle, between Florida avenue and Q streets NE.				48			120		
15	Woodley road and Nineteenth street extended.			36						
20	Woodley road and Twentieth street extended.			27						
24	Washington, between Monroe and Fillmore streets.			145	148	195				
12	First and W streets NW (NW and SW corners).			36		72				
1	Sixth, between Trumbull street and Howard avenue.			174						
4	Sixth, near Pomeroy street			6						
18	Seventh and Florida avenue NW.			3						
9	Ninth, between Florida and Grant avenues.			66						
2	Thirteenth and Harvard streets.			168						
13	Fourteenth street road, between Spring road and Piney branch.									93
17	Fourteenth and Park streets			48						
22	Fourteenth street road, between Spring road and Piney branch.						12			267
31	Sixteenth and Gales streets NE.			27						
32	Seventeenth and Park streets NW.		9							
3	Block 1, Trinidad			212	222					
10	Eighth, between Quincy and Savannah streets.					701.2				
	Total	163	955	2,069	640	1,184.2	607	132	775.6	360

various sewer appropriations, 1893–'94—Continued.

SUBURBAN SEWERS.

2.75 by 4.125 feet brick.	3 by 4.5 feet brick.	3.25 by 4.875 feet brick.	4 by 6 feet brick.	Bell section.	Manholes built.	Basins built.	Branches used.	Cost of materials.	Cost of labor.	Total cost.	Remarks.
.....	.....	.....	.....	.....	....	2	....	$82.35	$63.37	$145.72	
.....	.....	.....	.....	.....	3	....	11	437.23	898.25	1,335.48	
.....	.....	.....	.....	.....	2	....	15	268.14	677.72	945.86	
.....	.....	.....	.....	.....	....	....	3	37.40	136.87	174.27	
.....	.....	.....	.....	.....	1	....	....	183.76	383.29	567.05	
.....	.....	.....	.....	.....	....	1	....	33.40	34.25	67.65	
.....	.....	.....	.....	.....	....	1	....	17.89	30.12	48.01	
.....	.....	170.1	.....	.....	....	....	....	470.96	1,022.00	1,492.96	Cost of labor includes $25.23—cost of repairs to service pipe by water department.
.....	.....	.....	.....	.....	1	1		38.91	48.99	87.90	
.....	.....	.....	.....	.....	4	....	....	438.51	1,762.94	2,201.45	
.....	.....	.....	.....	.....	1	....	7	65.20	177.72	242.92	
.....	.....	.....	.....	.....	3	....	25	240.36	346.16	586.52	
.....	.....	.....	.....	.....	1	....	12	85.79	189.75	275.54	
.....	.....	.....	.....	.....	3	....	21	176.61	372.64	549.25	
.....	.....	.....	.....	.....	2	....	12	130.25	371.51	501.76	
.....	.....	.....	.....	.....	....	1	....	30.14	28.91	59.05	
.....	.....	.....	.....	.....	....	2	....	49.94	91.63	141.57	
.....	.....	.....	16.5	.....	....	....	....	87.77	300.57	388.34	
.....	.....	.....	.....	.....	....	2	....	59.46	79.40	138.86	
.....	13.5	.....	.....	.....	1	....	....	55.74	87.37	143.11	Connecting main sewers.
.....	.....	.....	.....	.....	2	....	....	153.06	258.79	411.85	
.....	.....	.....	.....	.....	....	2	....	62.53	60.50	123.03	
.....	.....	.....	.....	.....	....	1	....	42.69	36.93	79.62	
.....	.....	.....	.....	.....	4	....	25	320.35	534.90	855.25	
.....	.....	.....	.....	.....	2	2	....	160.83	281.61	442.44	
.....	.....	.....	.....	.....	1	....	....	78.59	142.88	221.47	
.....	.....	.....	.....	.....	1	1	....	42.60	51.50	94.10	
.....	.....	.....	.....	.....	....	1	....	33.01	33.87	66.88	
.....	.....	.....	.....	.....	....	4	....	152.45	145.03	297.48	
.....	.....	.....	.....	.....	....	4	....	191.15	145.75	336.90	
8	.....	.....	.....	23	1	....	....	538.95	969.19	1,508.14	
.....	.....	.....	.....	.....	....	1	....	47.30	73.44	120.74	
.....	.....	.....	.....	.....	....	....	....	888.44	1,889.84	2,778.28	
.....	.....	.....	.....	.....	....	1	....	43.73	62.64	106.37	
.....	.....	.....	.....	.....	....	1	....	20.34	38.37	58.71	
.....	.....	.....	.....	.....	2	....	10	210.87	362.86	573.73	
.....	.....	.....	.....	.....	....	....	....	.....	124.00	124.00	Cost of inspection of work performed under special permit.
8	13.5	170.1	16.5	23	35	28	141	5,976.70	12,315.56	18,292.26	

TABLE 4.—*Work done by days' labor under*

APPROPRIATION FOR RELIEF SEWERS

No. of order.	Location.	Pipe sewers laid (length in feet).							
		6-inch.	8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
28	Virginia avenue, between Four-and-a-half and Sixth streets SW.	27	.....	.....	524	.....	.....	.....	.....
33	Vermont avenue, between K and L streets NW.	32	.....	178	170	.....	.....	.....	.....
22	Potomac, between M and Prospect streets NW.	9	.....	.....	152	.....	.....	.....	.....
36	C, between Tenth and Eleventh streets SW. Eleventh, between C and Maryland avenue SW.	30	.....	.....	.....	356	60	.....	.....
37	D, between Thirteen-and-a-half and Fourteenth streets SW.	.....	.....	.....	.....	.....	.....	330	.....
35	M, between North Capitol and First streets NE.	.....	107	.....	.....	3	.....	.....	.....
27	N, between Four-and-a-half and Sixth streets SW.	.....	.....	.....	.....	46	.....	.....	.....
9	O, between Twenty-first and Twenty-second streets NW.	31	.....	.....	.....	.....	.....	.....	566
41	Q, between Seventh and Eighth streets NW.	3	.....	.....	.....	.....	28	78	.....
30	S, between Seventh and Eighth streets NW., and Alley, square No. 417.	156	.....	313	160	.....	138	.....	.....
12	T, between Fifteenth and Sixteenth streets NW.	59	.....	.....	.....	3	.....	.....	.....
26	T, between Harewood avenue and Linden street.	.....	.....	.....	18	.....	96	.....	.....
40	First, between B and Canal streets SW.	.....	.....	.....	.....	26	30	.....	.....
11	Third, between C and D streets SW.	25	.....	.....	.....	353	.....	.....	.....
14	Third, between East Capitol and A streets NE.	51	.....	.....	.....	.....	.....	.....	.....
1	Fourth, between Massachusetts avenue and B streets NE. B, between Third and Fourth streets NE.	36	.....	.....	189	63	.....	.....	.....
5	Fourth, between E and North Carolina avenue SE.	36	.....	.....	282	.....	121	.....	.....
18	Four-and-a-half, between I and K streets SW.	5	.....	.....	114	.....	6	.....	.....
39	Four-and-a-half, between C and Maryland avenue SW.	.....	.....	.....	.....	142	118	.....	.....
3	Fifth, between East Capitol and B streets SE.	198	.....	.....	21	.....	.....	.....	.....
7	Fifth, between M and N streets NW.	22	.....	.....	245	.....	.....	.....	.....
38	Fifth, between R and Rhode Island avenue NW.	.....	.....	.....	.....	.....	.....	228	.....
4	Sixth, between East Capitol and B streets SE.	138	.....	.....	27	9	.....	.....	.....
23	Sixth and Q streets NW.	.....	.....	.....	.....	.....	.....	.....	66
10	Seventh, between E and G streets SE.	.....	.....	.....	27	.....	.....	.....	.....
32	Seventh, between East Capitol and A streets SE.	112	.....	.....	.....	51	63	332	.....
19	Eighth, between G and H streets NW.	42	.....	.....	3	496	.....	.....	.....
15	Tenth, between Massachusetts avenue and L street NW.	.....	.....	.....	.....	.....	.....	174	.....
6	Eleventh, between North Carolina avenue and B street SE.	90	.....	.....	444	.....	.....	.....	.....
13	Fourteenth, crossing D street SW.	.....	.....	.....	.....	3	21	.....	66
34	Fifteenth and Pierce Place NW.	.....	.....	.....	24	33	.....	.....	.....
20	Sixteenth, between Corcoran and R streets NW.	15	.....	.....	.....	231	.....	.....	.....
34½	Eighteenth, between P and Q streets NW.	.....	.....	.....	.....	.....	193	.....	.....
25	Twentieth, between E and Virginia avenue NW.	12	.....	.....	.....	.....	290	345	.....
31	Thirtieth, between Chesapeake and Ohio Canal and M street NW.	.....	.....	.....	90	.....	.....	.....	.....
24	Thirty-first, between Chesapeake and Ohio Canal and Water street NW.	9	.....	.....	21	.....	.....	.....	.....
29	Thirty-first, between Chesapeake and Ohio Canal and M street NW.	.....	.....	.....	.....	45	.....	.....	.....
16	Alley, square 140	27	.....	.....	.....	.....	.....	.....	.....
8	Alley, square 516	36	.....	165	.....	134	24	.....	.....
17	Alley, square 69, G. T.	3	81	.....	27	.....	.....	.....	.....
	Total	1,204	188	656	2,538	1,994	1,188	1,487	698

various sewer appropriations, 1893–'94—Continued.

AND REPLACING OBSTRUCTED SEWERS.

3 feet diameter, brick.	Linear feet relaid.	Manholes built.	Basins built.	Branches used.	Cost of materials.	Cost of labor.	Total cost.	Remarks.
.....	538	3	.....	19	$215.86	$848.68	$1,064.54	All 6-inch pipe used for connecting house laterals.
.....	359	3	.....	10	173.02	694.25	867.27	
.....	237	1	.....	7	92.66	392.67	485.33	
.....	448	2	.....	13	236.34	612.68	849.02	
.....	332	.....	.....	.....	268.00	505.51	773.51	
.....	170	1	.....	6	37.00	220.09	257.09	
.....	46	.....	.....	.....	28.34	124.25	152.59	Reconnecting house laterals with new sewer.
.....	577	1	.....	10	670.46	1,340.49	2,010.95	
.....	176	.....	.....	2	86.68	393.43	480.11	
.....	625	4	.....	52	358.60	1,295.51	1,654.11	
.....	.....	.....	.....	.....	14.07	135.68	149.75	Reconnecting house laterals with new sewer.
.....	136	3	.....	.....	113.96	354.29	468.25	
.....	75	1	.....	1	48.56	142.67	191.23	
.....	365	1	.....	19	177.66	626.73	804.39	
.....	.....	.....	.....	.....	10.71	51.99	62.70	Reconnecting house laterals with new sewer.
.....	252	1	.....	6	148.32	453.09	601.41	
.....	793	.....	.....	20	276.17	784.96	1,061.13	
.....	254	1	.....	.....	82.43	386.72	469.15	
.....	265	1	.....	10	156.84	423.83	580.67	
.....	21	.....	.....	.....	42.43	243.00	285.43	
.....	578	.....	.....	10	156.22	811.38	967.60	
.....	.....	1	.....	.....	167.06	380.63	547.69	Relief sewer; did not replace existing line.
.....	36	1	.....	.....	46.64	234.77	281.41	
7	76	1	.....	.....	143.57	468.28	611.85	10-foot junction section constructed in addition to other work.
.....	27	.....	.....	.....	11.75	54.88	66.63	
.....	472	4	.....	10	394.73	921.77	1,316.50	
.....	503	3	.....	14	254.63	679.81	934.44	
.....	178	1	.....	.....	161.40	375.42	536.82	
.....	450	3	.....	12	199.81	612.86	812.67	
.....	90	.....	.....	.....	89.60	165.37	254.97	
.....	57	2	.....	.....	51.21	193.07	244.28	
.....	244	.....	1	5	140.43	453.74	594.17	
.....	195	1	.....	2	129.42	261.69	391.11	
.....	656	2	.....	4	415.80	1,027.93	1,443.73	
.....	90	.....	.....	.....	36.04	102.19	138.23	
.....	21	.....	.....	3	14.23	75.84	90.07	
.....	45	.....	.....	.....	21.42	101.69	123.11	
.....	.....	.....	.....	.....	9.46	43.05	52.51	Reconnecting house laterals with new sewer.
.....	359	4	.....	22	216.25	373.48	589.73	
.....	117	2	1	6	80.43	184.85	265.28	
7	9,863	48	2	263	5,978.21	17,553.22	23,531.43	

TABLE 4.—*Work done by days' labor under*

APPROPRIATION FOR

Location.	Pipe sewers laid (length in feet).				
	6-inch.	8-inch.	10-inch.	12-inch.	15-inch.
Pennsylvania avenue, between Sixth and Seventh streets SE	5	.....	6	.....	.....
A, between Sixth and Seventh streets NE. (north side	5	.....	.....	3	.....
A, between Sixth and Seventh streets NE. (south side)	5	.....	.....	6	.....
B, between North Capitol and Delaware avenue NE	5	3	.....	3	.....
B, between North Capitol and New Jersey avenue NW	5	.....	.....	15	.....
First, between B and C streets NE	5	.....	.....	4	.....
Seventh and B streets SE	5	.....	.....	2	.....
Seventh street and North Carolina avenue SE	.....	.....	6	.....	.....
Total	35	3	12	33	.....

MISCELLANEOUS

No. of order.	Location.	Pipe sewers laid (length in feet).			Basins built.
		8-inch.	10-inch.	12-inch.	
1	U, between Tenth and Fourteenth streets NW	.....	.....	.....	.....
4	U street, Georgetown	.....	.....	.....	.....
7	First and M streets NE	.....	.....	39	4
9	North Capitol and O streets	.....	.....	12	4
10	North Capitol, between Hanover and O streets	.....	.....	.....	.....
2	Tenth, between Q and R streets NW	141	.....	.....	6
11	N, between Thirteenth and Fourteenth streets NW	.....	87	.....	3
14	Fifth and G streets NW	.....	.....	90	3
15	K, between Fourth and Fifth streets NW	.....	60	.....	2
8	Eighteenth and Florida avenue NW	.....	.....	39	3
12	Twenty-third and M streets NW	.....	24	.....	1
	H, between Eighteenth and Nineteenth streets NW	24	.....	.....	1
	Total	165	171	180	* 27

No. of contract.	Location.	Size of sewer pipe.	Length of sewer.	Contract price (per linear foot).	Voucher, less material furnished.	Material furnished contractor.	
						Chargeable.	Not chargeable.
1912	Girls Reform School to Little Falls branch.	8-inch	*Lin. feet.* 1,871.5	$0.55	$1,073.94	$89.00	$190.16

* Ten of these basins constructed to take the place of old basins.

various sewer appropriations, 1893-'94—Continued.

AUTOMATIC SIPHONS.

Pipe sewers laid (length in feet).			Lead pipe connection.	Basins built.	Branches.	Cost of materials.	Cost of labor.	Total cost.
18-inch.	21-inch.	24-inch.						
			9	1		$84.12	$85.91	$170.03
			27	1		66.53	86.27	152.80
			26	1		79.11	86.28	165.39
			10	1		74.15	133.90	208.05
			13	1		92.42	90.40	182.82
			45	1		91.10	97.68	188.78
			22	1		85.26	94.61	159.87
			42	1		66.56	126.57	193.13
			194	8		639.25	781.62	1,420.87

APPROPRIATIONS.

Cost of material.	Cost of labor.	Total cost.	Appropriation.	Remarks.
$48.54	$150.93	$199.47	Improvement and repairs, northwest section.	Adjusting basins to grade and line.
2.80	22.39	25.19	Improvement and repairs, Georgetown.	Changing flushing basin to new grade.
65.17	127.71	192.88	Improvement and repairs, northeast section.	Adjusting basins to grade and line.
34.43	80.45	114.88	....do	Do.
	4.22	4.22	....do	Lowering manholes to grade.
129.23	165.37	294.60	Repairs to concrete pavements	
121.28	137.42	258.70	....do	
84.15	201.75	285.90	....do	Half cost of this work paid from deposit of Eckington and Soldiers' Home Rwy. Co.
47.52	114.87	162.39	....do	
43.83	80.78	124.61	Current repairs to streets, avenues, and alleys.	Adjusting basins to grade and line.
22.39	40.62	63.01	....do	
19.30	35.93	55.23	....do	
618.64	1,162.44	1,781.08		

Cost of inspection.	Total cost.	Appropriation.	Remarks.
$92.00	$1,445.10	Reform School for Girls	James McCandlish, contractor.

TABLE 5.—*Tabular statement of sewers*

PERMIT SEWERS.

No. of order.	Location.	Pipe sewers laid (length in feet).							5.25 feet diameter, brick.	2.75 by 4.125 feet, concrete.	Manholes.	Branches.
		8-in h.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.				
86	Eslin avenue, between Spring road and Lamar Place.	.....	.....	18	.....	6	.....	246	.....	.....	1	....
3	Florida avenue, between Third and R streets NW.	.....	88	.....	.....	.....	.....	.....	.....	.....	1	5
29	Florida avenue, between Thirteenth and Fourteenth streets NE.	.....	64	.....	.....	.....	.....	.....	.....	.....	1	2
42	Georgia avenue and Canal street, SE.	.....	.....	77	.....	60	.....	.....	.....	.....	1	1
56	Circle at Harewood avenue and T street NW.	77	.....	.....	.....	.....	.....	.....	.....	.....	1	1
89	New Hampshire avenue, between S street and Oregon avenue NW.	.....	.....	65	.....	.....	.....	.....	.....	.....	....	1
43	Le Droit avenue, between T and Thomas streets NW.	.....	.....	.....	209	.....	.....	.....	.....	.....	1	7
15	North Carolina avenue, between First and Second streets SE.	62	.....	.....	.....	.....	.....	.....	.....	.....	1	4
78	New Jersey avenue, between P and Franklin streets NW.	.....	132	.....	.....	.....	.....	.....	.....	.....	....	3
49	Pennsylvania avenue, between Tenth and Eleventh streets SE.	93	.....	.....	.....	.....	.....	.....	.....	.....	2	3
32	Sherman avenue, between Eighteenth and Nineteenth streets NW.	.....	.....	288	.....	.....	.....	.....	.....	.....	2	6
26	Brown street, between Howard and Sheridan avenues NW.	.....	96	.....	.....	.....	.....	.....	.....	.....	....	3
87	Bladensburg road, rear of 1028 to 1042.	.....	.....	115	.....	.....	.....	.....	.....	.....	....	8
11	Fenton, between North Capitol and First streets NE.	.....	114	.....	.....	.....	.....	.....	.....	.....	1	3
48	Jefferson, between C. and O. Canal and Water street NW.	11	.....	.....	.....	.....	.....	.....	.....	.....	....	1
50	Rock Creek Church road, between New Hampshire avenue and Eighth street. Eighth, between Rock Creek Church road and Newark street and block 31, Petworth.	.....	436	183	.....	.....	.....	.....	.....	304.5	3	5
41	Ward Place	.....	86	.....	.....	.....	.....	.....	.....	.....	1	10
45	B, between Tenth and Eleventh streets SE.	.....	175	.....	.....	.....	.....	.....	.....	.....	1	8
21	C, between Canal street and Delaware avenue SW.	.....	.....	271	.....	.....	.....	.....	.....	.....	1	8
88	C, between Seventh and Eighth streets NE.	.....	.....	37	.....	.....	.....	.....	.....	.....	1	2
68	D, between Tenth and Eleventh streets SE.	.....	.....	149	.....	.....	.....	.....	.....	.....	1	1
7	E, between Twenty-first and Twenty-second streets NW.	.....	65	.....	.....	.....	.....	.....	.....	.....	....	4
27	E, between Twentieth and Twenty-first streets NW.	.....	.....	89	.....	.....	.....	.....	.....	.....	1	4
30	E, between Eighth and Ninth streets NE.	.....	.....	58	.....	.....	.....	.....	.....	.....	....	2
38	E, between Twentieth and Twenty-first streets NW.	.....	.....	63	.....	.....	.....	.....	.....	.....	....	6
51	E, between Twentieth and Twenty-first streets NW.	.....	80	.....	.....	.....	.....	.....	.....	.....	1	4
25	F, between Tenth and Eleventh streets SW.	.....	198	.....	.....	.....	.....	.....	.....	.....	1	6
82	F, between Twenty-second and Twenty-third streets NW.	.....	.....	23	.....	.....	.....	.....	.....	.....	....	1

laid under the permit system, 1893-'94.

PERMIT SEWERS.

Amount of deposit.	Cost to District of Columbia.	Cost to property owner.	Total cost.	Amount returned.	For whom done.	Overseer.	Date of completion.
$490.00	$345.89	$345.88	$691.77	$144.12	R. B. Brown	Lyddane and Loulan.	June 12, 1894
78.00	77.91	77.92	155.83	.08	M. L. Zelbernagel	Bright	Aug. 3, 1893
72.00	66.48	66.47	132.95	5.53	M. L. Gottwals	Thomas	Sept. 14, 1893
170.00	93.05	93.05	186.10	76.95	James H. Grant	Lanigan	Sept. 28, 1893
68.00	53.32	53.32	106.64	14.68	William Birney	Prince	Nov. 6, 1893
60.00	37.89	37.90	75.79	22.10	W. S. Knoux	do	June 18, 1894
220.00	158.72	158.72	317.44	61.28	Barnes & Weaver	do	Oct. 6, 1893
60.00	45.02	45.02	90.04	14.98	Daniel Allman	Thomas	July 21, 1893
130.00	85.25	85.26	170.51	44.74	H. L. Rust	Ward	May 26, 1894
103.00	74.31	74.32	148.63	28.68	Wm. H. Yost & Bro.	Prince	Oct. 30, 1893
270.00	222.75	222.74	445.49	47.26	George S. Cooper	do	Oct. 10, 1893
70.00	56.25	56.26	112.51	13.74	Thos. M. Gale	do	Sept. 21, 1893
95.00	88.44	88.44	176.88	6.56	W. H. Walker	Ward	May 24, 1894
95.00	72.29	72.28	144.57	22.72	D. J. Ready	do	Aug. 25, 1893
12.00	6.39	6.39	12.78	5.61	J. H. Kettner	Prince	Oct. 20, 1893
1,320.50 330.00	1,637.35	1,637.34	3,274.69	13.16	A. P. Brown	Condon and Prince.	Feb. 1, 1894
133.50	63.65	63.65	127.30	69.85	J. G. Myers	Ward	Sept. 29, 1893
140.00	103.61	103.61	207.22	36.39	Charles Gessford	Lanigan	Oct. 2, 1893
250.00	208.07	208.07	416.14	41.93	Andrew Wondor	Ward	Aug. 30, 1893
50.00	43.12	43.12	86.24	6.88	William Ockstadt	do	June 7, 1894
134.00	108.52	108.52	217.04	25.48	W. E. Sebree	do	Mar. 29, 1894
47.50	47.50	47.50	95.00	.....	Ellen Lawler	Bright	Aug. 15, 1893
100.00	81.61	81.62	163.23	18.38	A. B. Hines	do	Aug. 17, 1893
50.00	40.60	40.60	81.20	9.40	J. C. Yost	Thomas	Aug. 19, 1893
52.00	40.44	40.43	80.87	11.57	Albert F. Fox	Bright	Aug. 29, 1893
80.00	55.10	55.09	110.19	24.91	Wash. Danenhower	Prince	Nov. 1, 1893
150.00	128.00	128.00	256.00	22.00	Thos. W. Riley	Ward	Sept. 15, 1893
20.00	18.35	18.34	36.69	1.66	O. C. Green	Prince	May 22, 1894

TABLE 5.—*Tabular statement of sewers*

PERMIT SEWERS—Continued.

No. of order.	Location.	Pipes sewers laid (length in feet).									Manholes.	Branches.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.	5.25 feet diameter, brick.	2.75 by 4.125 feet, concrete.		
83	F, between Twenty-second and Twenty-third streets NW.	.....	.....	20	.....	.....	.....	.....	.....	.....	.....	1
58	K, between Fourth and Fifth streets NW.	.....	.....	129	.....	.....	.....	.....	.....	.....	.....	3
67	L, between Third and Fourth streets SE.	.....	81	.....	.....	.....	.....	.....	.....	.....	.....	3
40	M, between Fourth and Fifth streets SE.	.....	97	.....	.....	.....	.....	.....	.....	.....	1	8
57	M, between North Capitol and First streets NW.	.....	147	138	.....	.....	.....	.....	.....	.....	2	18
76	M, between North Capitol and First streets NE.	64	.....	.....	.....	.....	.....	.....	.....	.....	1	3
54	N, between North Capitol and First streets NW.	.....	178	157	.....	.....	.....	.....	.....	.....	2	10
36	O, between Thirty-third and Thirty-fourth streets NW.	.....	20	.....	.....	.....	.....	.....	.....	.....	.....	1
55	O, between Vermont avenue and Thirteenth street NW.	36	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
13	P, between Mill and Twenty-eighth streets NW.	.....	.....	315	180	.....	.....	.....	.....	.....	4	24
18	P, between First and Third streets NW.	.....	.....	103	.....	.....	.....	.....	.....	.....	.....	5
4	Q, between Twenty-seventh and Twenty-eighth streets NW.	.....	135	74	.....	.....	.....	.....	.....	.....	2	4
47	S, between New Hampshire avenue and Seventeenth street NW.	.....	.....	59	.....	.....	.....	.....	.....	.....	1	1
74	S, between Eighteenth and Nineteenth streets NW.	.....	124	.....	.....	.....	.....	.....	.....	.....	1	5
72	T, between Seventh and Eighth streets NW.	57	.....	.....	.....	.....	.....	.....	.....	.....	1	3
17	First, between V and W streets NW.	.....	.....	.....	.....	.....	.....	.....	530	.....	2	.....
23	First, between I and K streets NW.	.....	59	.....	.....	.....	.....	.....	.....	.....	.....	1
35	First, between L and M streets SE.	.....	190	.....	.....	.....	.....	.....	.....	.....	1	8
77	First, between Indiana avenue and alley, square 574.	84	.....	.....	.....	12	.....	.....	.....	.....	2	3
2	Third, between G and H streets NE.	.....	.....	84	.....	.....	.....	.....	.....	.....	1	.....
22	Third, between M and N streets SE.	.....	144	.....	.....	.....	.....	.....	.....	.....	.....	6
31	Third, between G and H streets NE.	.....	.....	18	.....	.....	.....	.....	.....	.....	.....	.....
37	Third, between K and L streets SE.	.....	113	42	.....	.....	.....	.....	.....	.....	2	4
46	Third, between M and N streets SE.	.....	31	.....	.....	.....	.....	.....	.....	.....	.....	2
71	Third, between P and Q streets NW.	.....	.....	52	.....	.....	.....	.....	.....	.....	1	2
14	Fourth, between H and I streets NE.	65	.....	.....	.....	.....	.....	.....	.....	.....	1	4
12	Sixth, between Howard avenue and College street NW.	.....	.....	188	.....	.....	.....	.....	.....	.....	1	1
66	Eighth, from Rock Creek Church road northward.	.....	.....	267	.....	.....	.....	.....	.....	.....	1	3
60	Eleventh, between C st. and Maryland avenue SW.	93	.....	.....	.....	.....	.....	.....	.....	.....	1	6
81	Twelfth, between S and T streets NW.	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	1
64	Thirteenth street extended (block 25, Stone estate subdivision).	.....	.....	35	.....	.....	.....	.....	.....	.....	.....	1
84	Thirteenth, between Clifton and Roanoke streets NW.	.....	.....	232	.....	.....	.....	.....	.....	.....	2	6

laid under the permit system, 1893–'94—Continued.

PERMIT SEWERS—Continued.

Amount of deposit.	Cost to District of Columbia.	Cost to property owner.	Total cost.	Amount returned.	For whom done.	Overseer.	Date of completion.
$20.00	$17.20	$17.21	$34.41	$2.79	A. L. Phillips	Prince	May 22, 1894
110.00	77.68	77.69	155.37	32.31	Stephen Gatti	....do	Nov. 10, 1893
55.00	44.68	44.69	89.37	10.31	Luke C. Strider	Ward	Mar. 29, 1894
85.00	63.10	63.10	126.20	21.90	E. A. Clifford	Lanigan	Sept. 27, 1893
232.00	176.36	176.35	352.71	55.65	W. F. Basim	Ward	Nov. 23, 1893
53.00	49.90	49.89	99.79	3.11	John Raedy	Thomas	Apr. 19, 1894
282.00	195.67	195.67	391.34	86.33	J. F. Denson	Ward	Nov. 2, 1893
20.00	10.53	10.53	21.06	9.47	John T. West	Prince	Sept. 16, 1893
45.00	38.35	38.34	76,69	6.66	John H. Lane	....do	Nov. 13, 1893
506.00	367.39	367.39	734.78	138.61	Banes & Simpson	....do	Oct. 18, 1893
85.00	62.58	62.58	125.16	22.42	F. Schmidt	Lanigan	July 12, 1893
242.00	161.92	161.92	323.84	80.08	Thomas Hyde	Ward	July 21, 1893
64.00	54.92	54.92	109.84	9.08	L. E. Dessez	....do	Oct. 25, 1893
100.00	99.95	99.96	199.91	.04	Waters & Thompson	....do	Apr. 1, 1894
80.00	54.44	54.44	108.88	25.56	William Duffy	Thomas	Mar. 21, 1894
3,021.00	3,021.00	3,021.00	6,042.00	.....	Joseph Paul	Hunter	*Mar. 31, 1894
42.00	36.74	36.73	73.47	5.27	P. H. Gresham	Ward	Aug. 26, 1893
150.00	123.82	123.81	247.63	26.19	J. F. Horan	Bright	Sept. 22, 1893
104.00	86.63	86.62	173.25	17.38	William S. Jones	Thomas	Apr. 26, 1894
90.00	82.89	82.89	165.78	7.11	J. A. Thorn	Lanigan	Oct. 10, 1893
116.00	83.63	83.62	167.25	32.38	G. H. Dana, president.	Bright	Sept. 4, 1893
14.00	12.05	12.05	24.10	1.95	J. A. Thorn	Thomas	Aug. 14, 1893
146.00	121.88	121.89	243.77	24.11	O. M. Bryant	Ward	Sept. 28, 1893
24.00	18.95	18.94	37.89	5.06	L. B. Taylor	Lanigan	Oct. 7, 1893
90.00	64.42	64.42	128.84	25.58	Margaret Carroll	Ward	Mar. 29, 1894
56.50	45.08	45.08	90.16	11.42	Barr & Sanner	Thomas	Aug. 18, 1893
172.50	126.69	126.70	253.39	45.80	H. E. Pellew	Prince	July 22, 1893
235.00	178.41	178.41	356.82	56.59	Andrew Loeffler	Lanigan	Jan. 23, 1894
80.00	62.81	62.82	125.63	17.18	P. N. Dwyer	Ward	Nov. 28, 1893
14.00	9.09	9.10	18.19	4.90	F. G. Barbadoes	Lanigan	Apr. 28, 1894
28.00	20.50	20.50	41.00	7.50	Dr. W. A. Hammond	....do	Jan. 6, 1894
190.00	154.27	154.28	308.55	35.72	H. M. Schneider	Ward	May 30, 1894

*Constructed under contract with George S. Goode & Co.

TABLE 5.—*Tabular statement of sewers*

PERMIT SEWERS—Continued.

No. of order.	Location.	Pipe sewers laid (length in feet).							5.25 feet diameter, brick.	2.75 by 4.125 feet, concrete.	Manholes.	Branches.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.				
90	Fourteenth, between F and G streets NE.	.....	.....	150	.....	.....	.....	.....	.....	.....	.....	.....
24	Fourteenth, between Princeton and Harvard streets NW.	.....	.....	.....	138	.....	.....	.....	.....	.....	1	6
5	Eighteenth, between Oregon ave. and S street NW.	.....	108	.....	.....	.....	.....	.....	.....	.....	1	6
34	Twenty-first, between N and O streets NW.	.....	.....	146	.....	.....	.....	.....	.....	.....	1	1
79	Twenty-sixth, between D and Upper Water sts. NW.	.....	.....	131	.....	.....	.....	.....	.....	.....	1	1
9	Alley, square 153	84	.....	117	.....	.....	.....	.....	.....	.....	1	6
39	Alley, square 167	.....	109	.....	.....	.....	.....	.....	.....	.....	1	5
85	Alley, square 197	.....	133	.....	.....	.....	.....	.....	.....	.....	.....	8
33	Alley, square 445	.....	.....	237	.....	.....	.....	.....	.....	.....	1	3
70	Alley, square 491	.....	.....	11	.....	.....	.....	.....	.....	.....	.....	1
28	Alley, square 520	.....	.....	140	.....	.....	.....	.....	.....	.....	.....	7
8	Alley, square 542	.....	172	141	.....	.....	.....	.....	.....	.....	2	20
53	Alley, square 546	80	.....	.....	.....	.....	.....	.....	.....	.....	2	4
69	Alley, square 592	.....	50	127	.....	.....	.....	.....	.....	.....	1	9
80	Alley, square 592	77	3	.....	.....	.....	.....	.....	.....	.....	3	7
63	Alley, square 616	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
65	Alley, square 633	141	.....	.....	.....	.....	.....	.....	.....	.....	2	6
59	Alley, square 663	.....	.....	.....	25	.....	18	.....	.....	.....	1	2
19	Alley, square 693	.....	190	.....	.....	.....	.....	.....	.....	.....	2	8
75	Alley, square 727	104	.....	.....	.....	.....	.....	.....	.....	.....	2	10
10	Alley, square 734	76	.....	.....	.....	.....	.....	.....	.....	.....	1	2
1	Alley, square 855	.....	.....	163	.....	.....	.....	.....	.....	.....	1	5
44	Alley, square 856	136	.....	.....	.....	.....	.....	.....	.....	.....	2	2
20	Alley, square 988	.....	.....	231	.....	.....	.....	.....	.....	.....	.....	6
62	Square 11, Bloomingdale	.....	60	.....	.....	21	.....	.....	.....	.....	1	3
16	Block 10, Le Droit Park	.....	149	.....	218	.....	.....	.....	.....	.....	2	17
52	Block 30, Long Meadows	.....	.....	148	99	.....	.....	.....	.....	.....	2	5
61	Block 7, Washington Heights.	.....	.....	242	.....	.....	.....	.....	.....	.....	1	1
73	O, between First and Canal streets SW.	.....	.....	432	.....	.....	.....	410	.....	.....	3	34
	Total	1,373	3,827	5,773	869	99	18	656	530	304.5	89	434

aid under the permit system, 1893-'94—Continued.

PERMIT SEWERS—Continued.

Amount of deposit.	Cost to District of Columbia.	Cost to property owner.	Total cost.	Amount returned.	For whom done.	Overseer.	Date of completion.
$112.50	$93.65	$93.66	$187.31	$18.84	John O. Johnson	Ward	June 25, 1894
150.00	111.88	111.88	223.76	38.12	Barr & Sanner	Prince	Aug. 12, 1893
95.00	95.00	95.00	190.00	.....	E. S. Exley	Bright	Aug. 29, 1893
145.00	131.21	131.21	262.42	13.79	C. D. Maxwell	Ward	Aug. 31, 1893
150.00	140.53	140.53	281.06	9:47	Chris. Heurich Brewing Co.	Prince	May 12, 1894
189.00	120.01	120.01	240.02	68.99	T. F. Schneider	Ward	Oct. 26, 1893
100.00	75.85	75.85	151.70	24.15	A. P. Clark, jr	do	Oct. 21, 1893
135.00	84.95	84.94	169.89	50.06	C. Denekas	Lanigan	May 29, 1894
{180.00 / 20.00}	153.35	153.35	306.70	46.65	C. W. & T. E. Brown	Prince	Aug. 25, 1893
10.00	6.71	6.70	13.41	3.30	F. A. Lutz	Ward	Feb. 21, 1894
116.00	73.76	73.76	147.52	42.24	J. D. Gibbs	Prince	Aug. 21, 1893
270.90	192.96	192.96	385.92	77.04	P. N. Dwyer	Lanigan	Sept. 9, 1893
100.00	43.14	43.15	86.29	56.85	Samuel Ross	Prince	Nov. 3, 1893
191.00	150.08	150.07	300.15	40.93	R. C. Clark	Ward	Feb. 27, 1894
90.00	64.47	64.47	128.94	25.53	Thomas R. Brooks	do	Apr. 28, 1894
35.00	16.69	16.68	33.37	13.32	J. T. McIntosh	Prince	Dec. 7, 1893
123.00	110.78	110.78	221.56	12.22	A. O. Bliss	Ward	Feb. 20, 1893
67.00	61.31	61.30	122.61	5.70	Mich'l. Esch	do	Nov. 24, 1894
185.00	157.43	157.42	314.85	27.58	F. E. Richards	Bright	Sept. 14, 1893
100.00	73.45	73.45	146.90	26.55	Jacob Jones	Thomas	May 20, 1894
79.00	60.87	60.87	121.74	18.13	A. J. Fisher	do	July 20, 1893
150.00	128.92	128.91	257.83	21.09	Jno. H. Lewis	Lanigan	Aug. 1, 1893
110.00	95.25	95.26	190.51	14.74	Clark Bros	do	Oct. 14, 1893
175.00	147.72	147.73	295.45	27.27	Chas. Gessford	Ward	Sept. 9, 1893
108.50	81.97	81.97	163.94	26.53	Wm. H. Lawson	Prince	Dec. 8, 1893
370.00	283.63	283.62	567.25	86.38	W. A. Kimmel	do	Sept. 30, 1893
255.00	204.54	204.54	409.08	50.46	J. F. Allwine	Lanigan	Oct. 31, 1893
211.00	157.98	157.98	315.96	53.02	Chas. Stott	Prince	Nov. 22, 1893
1,090.50	736.58	736.58	1,473.16	353.92	G. A. Prevost	Ward	Apr. 15, 1894
16,515.00	13,638.08	13,638.08	27,276.11	2,876.97			

TABLE 5.—*Tabular statement of sewers laid*

WORK PERFORMED UNDER THE

No. of order.	Location.	Pipe sewers laid (length in feet).							Manholes built.	Basins built.	Branches used.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.			
55	Columbia avenue, between Morris and Erie streets.	.....	.....	252	270	.....	.....	.....	3	....	33
11	Bacon, between Fourteenth and Fifteenth streets NW.	.....	.....	481	.....	.....	.....	.....	2	....	5
48	Jefferson street, Anacostia, and alley, between Jefferson and Pleasant, Fillmore and Nichols avenues.	.....	.....	.....	382	.....	105	.....	2	....	20
46	Park, between Seventeenth street and Piney Branch road.	.....	200	.....	.....	.....	.....	.....	1	....	7
6	B, between Eighth and Ninth streets SE.	.....	.....	109	.....	.....	.....	.....	.....	....	2
2	C, between Third and Fourth streets SE.	.....	.....	320	.....	.....	.....	.....	2	....	16
19	G, between Twenty-fourth street and Virginia avenue NW.	.....	.....	40	.....	.....	.....	.....	.....	....	2
51	H, between Thirteenth and Fourteenth streets NE.	.....	.....	.....	199	.....	15	.....	2	....	2
27	M, between Twelfth street and Trinidad sewer and Block 3, Trinidad.	.....	.....	152	378	.....	.....	.....	2	....	4
15	N, between South Capitol and First streets SE.	.....	.....	258	108	45	.....	.....	2	....	12
49	N, between Thirty-sixth and Thirty-seventh streets NW.	.....	.....	253	.....	.....	.....	.....	2	....	20
17	O, between Thirty-sixth and Thirty-seventh streets NW.	.....	.....	312	.....	.....	.....	.....	2	....	12
18	R, between Twenty-first street and Florida avenue, and Twenty-first street, between R street and Florida avenue.	.....	159	180	.....	.....	.....	.....	2	....	9
34	U between First street and Le Droit avenue, Le Droit avenue, between U and Elm streets.	.....	.....	15	237	435	.....	.....	3	....	3
36	Half, between M and N streets SE.	.....	.....	258	.....	.....	.....	...	...	.. .	9
9	Second, between M and N streets SW.	.....	.....	490	.....	.....	.....	...	2	.. .	32
14	Second, between K and L streets NE.	.....	332	33	.....	.....	.....	...	3	.. .	13
42	Fifth, between D and E streets SE.	.....	127	118	.....	.....	.....	...	2	.. .	13
7	Seventh, between Trumbull and College streets.	.....	143	183	.....	.....	.....	...	2	.. .	16
26	Tenth, between E and G streets SE.	.....	.....	119	.....	.....	.....	...	...	.. .	4
40	Eleventh, between G and H streets NE.	.....	.....	309	.....	.....	.....	...	1	.. .	9
44	Thirteenth, between Spring road and Lydecker avenue.	.....	.....	111	98	580	194	396	...	.. .	10
8	Twenty-fifth, between I and K streets NW.	.....	.....	525	.....	.....	.....	...	...	.. .	27
13	Twenty-fifth, between M and N streets NW.	.....	167	365	.....	.....	.....	...	3	.. .	8
22	Twenty-sixth, between P and East streets NW.	.....	363	48	.....	.....	.....	...	...	.. .	21
21	Thirty-first, between K and Chesapeake and Ohio Canal.	.....	230	116	.....	.....	.....	.....	...	.. .	17
28	Thirty-first, between O and P streets NW.	.....	118	.....	.....	.....	.....	.....	.. .	.. .	5
30	Alley, square 16	24	.....	6	.....	.....	.....	.....	...	2	...
32	Alley, square 24	.....	218	.....	.....	.....	.....	.....	1	.. .	22
38	Alley, square 28	.....	.....	.....	.....	.....	.....	.....	.. .	1	....
52	Alley, square 131	.....	.....	314	27	.....	.....	.....	3	1	25
31	Alley, square 140	.....	411	358	.....	222	310	.....	8	.. .	70
20	Alley, square 181	.....	.....	160	.	.....	.....	.....	...	.. .	5
25	Alley, square 275	.....	.....	89	.	.....	.....	.....	1	.. .	4
23	Alley, square 296	41	142	229	197	.....	.....	.....	5	.. .	39
45	Alley, square 453	.....	131	....	.	.....	.....	.....	2	.. .	16
29	Alley, square 516	.....	200	...	.	.....	.....	.....	1	.. .	20
53	Alley, square 534	51	.....		.	.....	.....	.....	1	.. .	3
4	Alley, square 546	.....	.....	52	.	.....	.....	.....	1	.. .	8
39	Alley, square 546	3	.....		.	.....	.....	.....	...	1	....
3	Alley, square 693	.....	47		.	.....	.....	.....	1	.. .	4

under the permit system, 1893–'94—Continued.

COMPULSORY PERMIT SYSTEM.

Cost to District of Columbia.	Cost to property owner.	Total cost.	Overseer.	Date of completion.	Remarks.
$464.75	$464.75	$929.50	Prince	Mar. 2, 1894	
314.31	314.31	628.62	....do	Aug. 9, 1893	
466.27	466.26	932.53	Lanigan and Shomo	*Dec. 30, 1893	
136.97	136.97	273.94	Lanigan	Mar. 15, 1894	
75.20	75.20	150.40	Ward	Aug. 26, 1893	
316.10	316.10	632.20	Thomas	July 17, 1893	
28.55	28.54	57.09	Bright	Aug. 16, 1893	
229.72	229.72	459.44	Prince	Feb. 19, 1894	
430.00	430.00	860.00	Lanigan	Dec. 9, 1883	
366.41	366.41	732.82	....do	Sept. 7, 1893	
209.89	209.88	419.77	Bright	Jan. 27, 1894	
291.25	291.26	582.51	....do	Aug. 18, 1893	
233.73	233.72	467.45	....do	Jan. 2, 1894	
604.41	604.40	1,208.81	Prince and Shomo	*Jan. 3, 1894	
172.90	172.91	345.81	Lanigan	Sept. 26, 1893	
277.08	277.07	554.15	....do	July 21, 1893	
276.99	276.98	553.97	Ward	Oct. 18, 1893	
175.01	175.02	350.03	....do	Feb. 21, 1894	
253.25	253.26	506.51	Prince	July 24, 1893	
91.69	91.68	183.37	....do	Oct. 27, 1893	
212.73	212.73	425.46	Lanigan	Oct. 25, 1893	
1,677.58	1,667.58	3,355.16	Lanigan and Shomo	*Jan. 6, 1894	
425.34	425.34	850.68	Bright	Aug. 9, 1893	
364.38	364.39	728.77	Ward	Sept. 30, 1893	
277.46	277.46	554.92	Prince	Nov. 28, 1893	
777.54	777.53	1,555.07	Bright	Mar. 21, 1894	
168.75	168.75	337.50	Prince	Nov. 7, 1893	
63.29	63.28	126.57	King	Sep. 21, 1893	
148.50	148.50	297.00	Ward	Oct. 7, 1893	
46.26	46.27	92.53	King	Sept. 23, 1893	75 linear feet 6-inch pipe sewer connection.
315.99	315.99	631.98	Prince	Feb. 14, 1894	
1,527.22	1,527.22	3,054.44	Prince and Shomo	*Apr. 26, 1894	
106.19	106.19	212.38	Prince	Aug. 29, 1893	
66.35	66.36	132.71	....do	Aug. 30, 1893	
441.78	441.78	883.56	Bright	Oct. 15, 1893	
78.20	78.20	156.40	Prince	Mar. 9, 1894	
123.60	123.60	247.20	Thomas	Oct. 7, 1893	
40.46	40.47	80.93	Ward	Feb. 28, 1894	
40.12	40.11	80.23	Lanigan	July 15, 1893	
26.06	26.05	52.11	King	Oct. 10, 1893	
42.86	42.85	85.71	Bright	Oct. 2, 1893	

* Performed by day labor and under contract.

TABLE 5.—*Tabular statement of sewers laid*

WORK PERFORMED UNDER THE

No. of order.	Location.	Pipe sewers laid (length in feet).							Manholes built.	Basins built.	Branches used.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.			
35	Alley, square 701	96	.....	671	295	.....	.....	.....	8	....	36
16	Alley, square 724	.....	.....	530	.....	.....	.....	.....	2	....	31
54	Alley, square 14 G. T	.....	255	221	.....	.....	.....	.....	2	....	37
5	Alley, square 29 G. T	.....	.....	339	.....	.....	.....	.....	2	....	21
10	Block 3, Trinidad, Twelfth, between N and P streets; O between Baltimore and Ohio R. R. and Twelfth; N between Baltimore and Ohio R. R. and Twelfth street.	.....	.....	1,169	.....	.....	666	.....	9	....	25
37	Block 27, Rosedale	.....	.....	194	.....	.....	.....	.....	2	....	19
41	Alley, between Fourth, Fifth, Wilson, and Pomeroy streets.	.....	.....	316	.....	.....	.....	.....	1	....	17
	Alley, square 284	115	.....	126	.....	.....	.....	.....	2	....	12
	Delaware avenue, between F and G street SW.	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
	Valley, between P and Q street NW.	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
	Alley, square 529	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
	Alley, square 763	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
	Alley, square 1027	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
	Total	330	3,243	9,821	2,191	1,282	1,290	396	105	5	745

WORK PERFORMED AT WHOLE

No. of order.	Location.	Pipe sewers laid (length in feet).				Manholes built.	Basins built.	Branches used.
		6-inch.	8-inch.	10-inch.	12-inch.			
14	New Jersey avenue and G street NW.	.....	.....	.....	.....	.....	1	.....
8	Vermont avenue, front of No. 1331	.....	.....	.....	.....	1	.....	.....
16	French, between Ninth and Tenth streets NW.	89	.....	.....	2	.....	.....	2
12	Morgan street NW. (square 555)	.....	74	.....	.....	2	.....	4
15	North Capitol, between G and O., and G, between North Capitol and New Jersey avenue.	.....	.....	.....	.....	.....	.....	.....
1	Princeton, between Thirteenth and Fourteenth streets NW.	72	.....	.....	.....	.....	.....	.....
10	C, between Ninth and Tenth streets NE.	.....	.....	.....	20	1	.....	1
2	G, between Tenth and Eleventh streets NW.	.....	.....	.....	18	.....	2	.....
6	I, between Second and Third streets SW.	.....	11	.....	.....	.....	.....	1
4	Q, between Twenty-seventh and Twenty-eighth streets, NW.	.....	30	.....	.....	.....	1	.....
9	Eleventh street NW. (rear of No. 2228).	.....	.....	.....	.....	.....	.....	.....
3	Alley, square 83	.....	96	71	.....	3	.....	15
5	Alley, square 589	.....	97	.....	.....	1	.....	11
7	Alley, square E 1042	30	105	.....	220	7	.....	14
11	Various streets	.....	.....	.....	.....	.....	.....	.....
13	Various streets	.....	.....	.....	.....	.....	.....	.....
	Total	119	485	71	260	15	4	48

[1] Deposit made on account of extension of road in East Washington, adjusting and constructing basins, manholes, etc.
[2] Moving manhole.
[3] Deposit made for surface work; allotment made for basins, $160.

under the permit system, 1893–'94—Continued.

COMPULSORY PERMIT SYSTEM—Continued.

Cost to District of Columbia.	Cost to property owner.	Total cost.	Overseer.	Date of completion.	Remarks.
$818.37	$818.37	$1,636.74	Lanigan	Sept. 21, 1893	
389.11	389.11	778.22	Bright	Dec. 11, 1893	
309.34	309.35	618.69	Lanigan	Feb. 25, 1894	
284.56	284.55	569.11	Ward	July 18, 1893	
1,671.21	1,671.22	3,342.43	Lanigan and Shomo	*Nov. 23, 1893	
218.96	218.95	437.91	Bright	Sept. 22, 1893	
199.71	199.71	399.42	Prince	Nov. 16, 1893	
87.16	87.16	174.32	Bright	Aug. 10, 1893	Begun fiscal year 1893.
3.28	3.29	6.57			Repairing over sewer constructed in fiscal year 1893.
9.31	9.31	18.62			Do.
4.03	4.02	8.05			Do.
7.55	7.56	15.11			Do.
9.85	9.85	19.70			Do.
16,397.58	16,397.54	32,795.12			

* Performed by day labor and under contract.

COST TO APPLICANT.

Amount of deposit.	Cost of work.	Amount returned.	For whom done.	Overseer.	Date of completion.
	$68.53		Eckington and Soldiers' Home Rwy. Co.	Lyddane	[1] June 23, 1894
$35.00	32.81	2.19	Thomas Francis, jr	Prince	[2] Nov. 10, 1893
80.00	72.85	7.15	Emma V. Dutton	do	June 26, 1894
228.00	155.25	72.75	Chas. W. Handy	Ward	Mar. 29, 1894
	13.55		Eckington and Soldiers' Home Rwy. Co.	King	[4] Aug. 1, 1894
100.00	72.26	27.74	Barr and Sanner	Prince	Aug. 21, 1893
62.00	59.04	2.96	Jno. G. Slater	Lanigan	Jan. 3, 1894
420.00	130.46		A. Lisner	Lyddane	[3] Aug. 18, 1893
15.00	10.92	4.08	B. Leonard	Lanigan	Oct. 4, 1893
90.00	60.06	29.94	Thos. Hyde	Prince	Sept. 19, 1893
12.14	12.14		Frederick Tilp	Thomas	[4] Nov. 15, 1893
102.00	65.88	36.12	American Security and Trust Co.	Loulan	[5] Aug. 31, 1893
140.00	95.06	44.94	Smithson and Richards	Ward	Sept. 11, 1893
20.00	195.41	24.59	Wm. A. Vaughn	Neville	[6] Oct. 26, 1893
200.00					
31.50	30.82	.68	C. H. Clark	Dunn	[7] Jan. 24, 1894
	26.43		Eckington and Soldiers' Home Rwy. Co.	King	[1] May 24, 1894
1,535.64	1,101.47	253.14			

[4] Examining house connections.
[5] Deposit made for cement castings, and inspection; labor performed by applicant.
[6] Deposit made for materials and inspection; labor performed by applicant.
[7] Repairing basins constructed under contract No. 957.

TABLE 6.—*List of overseers, inspectors, and other employés*

Name.	Designation.	Compensation per diem.	Relief sewers and replacing obstructed sewers.		Main and pipe sewers.	
			No. of contract.	Amount paid.	No. of contract.	Amount paid.
Bailey, C	Subinspector	$2.50	General services.	$14.95	General services.	$24.70
Barton, W. M	Chainman	2.00	...do		...do	
Beale, J. W	Inspector	4.00	...do	99.55	...do	164.50
Boiseau, L. T	Superintendent of property.	4.75	...do	100.31	...do	173.87
Condon, J. J	General foreman	4.50	...do		...do	
Darneille, B. J	Assistant disbursing clerk.	2.00	...do		...do	
Dickinson, H. M	Inspector	3.00	...do	101.38	...do	166.27
Donaldson, Clayton	Subinspector	2.50	...do	27.11	...do	44.50
Donaldson, Wm	Inspector	4.00	...do	72.98	...do	119.84
Donovan, Henry	Rodman	2.00, 2.50	...do		...do	413.75
Fuller, E. A	Stenographer	3.50	...do	193.25	...do	325.50
Garland, J. S	Assistant engineer	4.00	...do		...do	182.00
Grey, W. J. W	Clerk	3.00	...do	43.03	...do	70.58
Hancock, W. S	Inspector	3.25	...do	98.47	...do	160.22
Hargrove, J. O	Assistant inspector	2.00, 2.50	...do	34.00	...do	57.00
Herbulis, A. O. von	Assistant observer	2.50, 3.50	...do		...do	
Hurd, H. C	Axman	2.00	...do		...do	42.00
Jennings, J. P	Storekeeper	2.50	...do	33.47	...do	55.04
Kelton, J. C	Tracer	2.00, 2.50	...do	27.50	...do	264.75
Laskey, J. M	Timekeeper	2.00	...do		...do	
Latham, P. J	Rodman	2.50	...do		...do	7.50
Leech, H. B	Axman	2.00	...do		...do	381.00
Morris, E	Subinspector	2.50	...do	35.97	...do	59.29
McKenney, C. A	Rodman	2.50	...do		...do	277.50
Parker, R. H	Subinspector	2.00	...do	76.00	...do	136.50
Payne, J. E	Clerk	3.50	...do	72.39	...do	114.78
Sheets, W. S	Timekeeper	2.00	...do			
Thurston, F. T	Observer	5.00	...do			
Voss, W. H	Inspector	3.00	...do	92.37	General services.	150.33
Wallace, G. W	Subinspector	3.50	...do		...do	1,073.75
Bitting, J. D	Inspector	4.00	1797	54.00	1798 1806	232.00
Bright, J. W	...do	4.00	1896	214.00	1896	16.00
Chapman, A. A	Assistant inspector	3.00			1900	129.00
Clark, J. C	Inspector	4.00				
Dunn, A. G	...do	4.00	1797	4.00	1796 1898	112.00
Elder, J. R	...do	3.00, 4.00				
French, J. A	Assistant inspector	2.50				
Groat, W. H	Inspector	4.00				
Hunter, J. A	...do	4.00	1899	250.00		
Lemon, Chas	...do	4.00			1796	344.00
Loulan, J. T	...do	4.00	1797 1897	326.00	1797	88.00
McClure, W. F	...do	4.00				
Neville, Andrew	...do	4.00	1797	64.00	1907	92.00
Neville, J. A	...do	4.00			1728	184.00
Shomo, J. M	...do	4.00	1797 1806	446.00	1797 1806	430.00
Venable, J. L	...do	4.00				
Wilson, G. G	...do	4.00			1868	370.00

paid from the appropriations for sewer work.

Construction of suburban sewers.		Permit work.		Main intercepting sewer.		Automatic siphons.		Cleaning and repairing sewers and basins.	Gauging sewers and rainfall.
No. of contract.	Amount paid.	No. of contract.	Amount paid.	No. of contract.	Amount paid.	No. of contract.	Amount paid.	Amount paid.	Amount paid.
General services.	$16.35	General services.						$9.00	
		...do	$463.60						
General services.	108.25	...do						60.75	
...do	114.26	...do	95.70					45.67	
		...do						335.20	
		...do	14.00						
General services.	110.28	...do	63.03					60.43	
...do	29.73	...do						16.16	
...do	79.84	...do						43.44	
		...do	56.00						
General services.	243.75	...do	132.00					124.50	
		...do							
General services.	46.85	...do	60.40					25.64	
...do	105.66	...do	84.06					58.15	
...do	37.25	...do	19.50					20.75	
									$883.75
General services.	36.52	General services.	52.62					19.87	
								338.00	
									6.00
...do	39.56							21.43	
General services.	96.00	General services.	48.00					50.00	
...do	76.50	...do	70.50					58.33	
								255.00	
									1,539.37
General services.	99.71	General services.	57.78					54.64	
1806	214.00								
1896	8.00								
				1794	$267.00				
				1794	968.00				
1868	352.00					1913	$36.00		
1795	135.00			1794	979.50				
				1794	45.00				
1805	372.00								
1899	74.00	1868	208.00	1794	524.00				
1728 1868	390.00								
1728 1868	624.00								
1791 1728 1795	460.00								
		1868	108.00						
1797	74.00	1797	168.00						
	36.00								
1799 1723	224.00			1794	22.00				

REPORT OF THE SUPERINTENDENT OF LAMPS.

OFFICE OF THE ENGINEER COMMISSIONER,
DISTRICT OF COLUMBIA,
Washington, July 26, 1894.

SIR: I have the honor to submit herewith the annual report of the street lighting division for the year ending June 30, 1894, with a statement of receipts and expenditures; also estimates for street lighting for the year ending June 30, 1896:

ELECTRIC LIGHTING.

Money statement for year ending June 30, 1894.

Appropriation, act March 3, 1893	$59,500.00
Repayment for street lighting, Baltimore and Potomac Railroad	547.50
Total amount available	60,047.50
Disbursements:	
United States Electric Lighting Company for street lighting	59,009.68
Services of inspector during the year	841.50
Lowering arc lights	165.71
Repairs to bicycles, etc	2.71
Total disbursements	60,019.59
Unexpended balance	27.91
	60,047.50

Arc lamps (actual 1,000-candle power) maintained.

June 30, 1893	332
June 30, 1894	327
Decrease during the year	5

The arc lamps have been lighted from sunset to sunrise during the year, a total of 4,300 hours. A reduction to 3,850 hours is recommended. This would be sufficient to light during the hours of darkness, including moonlight nights.

The service of the United States Electric Lighting Company has been very satisfactory. The penalties for arc lamps discovered not lighted during the year was $122.22, and for arc lamps lighted by overhead wires, $1,063.90; total, $1,186.12.

All the arc lamps on Fourteenth street NW., between Thomas Circle and Florida avenue (23) were lowered during the year from a height of 20 feet to that of 12.5 feet above the surface of the curb line. This change has improved the lighting of this street, as the light is no longer obscured by the dense foliage. All electric lights, the rays of which are hid by trees, should be lowered to a height of not over 12½ feet above the roadway.

The tall poles now in use for electric lighting should, at an early day, be exchanged for poles with some pretentions to proportion and ornamentation.

The present cost for electric lighting is 50 cents per lamp per night, $182.50 per lamp per annum. A reduction of 30 per cent in the cost of this service could not be regarded otherwise than equitable.

Estimates for electric lighting for year ending June 30, 1896.

For maintaining 330 arc lights for one year	$48,180
For extension of the service recommended in report for 1893, 119 arc lights, at 40 cents per lamp per night	17,374
Total	65,554

GAS AND OIL LIGHTING.

Money statement for year ending June 30, 1894.

Appropriation, act March 3, 1893		$146,000.00
Repayments:		
Baltimore and Potomac Railroad—		
Street lighting	$2,899.70	
Erection of lamps	96.64	
		2,996.34
Baltimore and Ohio Railroad—		
Street lighting	1,298.79	
Erection of lamps	144.16	
		1,442.95
Total amount available		150,439.29
Disbursements:		
For street lighting—		
Washington Gaslight Company	120,660.92	
Georgetown Gaslight Company	9,880.77	
Nicolai Bros	11,239.15	
		141,780.84
For erection and removal of lamp-posts—		
Washington Gaslight Company	1,862.18	
Georgetown Gaslight Company	50.56	
Nicolai Bros	179.00	
		2,091.74
For street-lighting materials—		
E. L. Dent (lamp-posts)	896.00	
Radford Pipe and Foundry Company (lamp-posts)	120.00	
R. D. Wood (lamp-posts)	5.20	
		1,021.20
Pennsylvania Globe Gaslight Company (street lanterns	613.55	
John L. Gaumer Company (street lanterns)	579.47	
J. G. Miner (street lanterns)	24.00	
Bartlett Globe Manufacturing Company (street lanterns)	10.20	
H. I. Gregory (street lanterns)	4.75	
		1,231.97
Repair of plant—		
Pay roll, services painting street lamps	1,069.49	
E. L. Dent (reboring lamp-post arms)	38.85	
Geo. White & Son (reboring lamp-post arms)	39.49	
W. L. McPrauty (reboring lamp-post arms)	23.13	
Hugh Reilly (paints and oils)	110.81	
		1,281.77
H. I. Gregory (street signs)		125.00
J. D. Valtz (2 ladders)		5.00
Cartage of materials		225.60
Relaying asphalt pavement		11.40
Materials for plats and maps		3.75
Total disbursements to date		147,778.27
Outstanding liabilities:		
Radford Pipe and Foundry Company (205 lamp-posts)	$1,230.00	
Pennsylvania Globe Gas Light Company (300 lanterns)	1,350.00	
J. L. Gaumer Company (200 street signs)	76.00	
		2,656.00
Unexpended balance		5.02
		150,439.20

Gas lamps lighted.

June 30, 1894, by Washington Gas Light Company	5,780	
June 30, 1894, by Georgetown Gas Light Company	466	
		6,246
June 30, 1893, by Washington Gas Light Company	5,494	
June 30, 1893, by Georgetown Gas Light Company	460	
		5,954
Net increase during the year		292

During the year the following changes were made:

New gas lamps erected and lighted	380
Gas lamps discontinued	88

Of the number of new lamps erected, 240 were in the city, 12 in Georgetown, and 128 in the suburban districts.

Of the 88 gas lamps discontinued, 54 were on United States reservations, 22 were discontinued as unnecessary, and 12 on account of proximity to the public arc lamps.

Oil lamps lighted.

June 30, 1894	747
June 30, 1893	700
Net increase during the year	47

The changes in oil lighting during the year were:

New lamps lighted	144
Lamps discontinued (replaced by gas)	94
Lamps discontinued on account of street improvements	3
The total expenditure of the District for lighting the streets during the year has been	$210,453.86

That is, for—

Street lighting, gas and oil lamps	150,434.27
Street lighting, electric arc lamps	60,019.59

Estimate for gas and oil lighting for year ending June 30, 1896.

6,400 gas lamps, twelve months, at $20.50 per annum	$131,200.00
300 gas lamps, nine months, at $20.50 per annum	4,612.50
1,000 naphtha lamps, twelve months, at $17 per annum	17,000.00
500 lamp-posts, at $6.50	3,250.00
800 lanterns, at $4.50	3,600.00
Painting 7,700 lamps	2,310.00
Removal and erection of lamps to other locations	1,000.00
Erection of new lamps	3,000.00
Cartage and contingent expenses	500.00
Total	166,472.50

No section of the District has been neglected in recommendation for street lights, so far as the funds on hand would permit.

The gas and oil lamps were lighted 3,000 hours, as provided by law. I beg leave to recommend that the number of hours lighting for the gas and oil lamps be increased to 3,850 hours, so as to do away with the necessity of depending upon the moon for light. The streets of Washington and Georgetown are lined with large shade trees. On moonlight nights when the lamps are not lighted the sidewalks and many sections of the prominent roadways are in absolute darkness.

The experiment as to the relative value of oil and naphtha lamps, conducted by this department last October, demonstrated the value of naphtha for street lighting. It is to be hoped that the wick oil lamp will, at an early day, be superseded by the naphtha lamp. The naphtha lamp is in public use in the suburbs of all our large cities to the exclusion of the oil lamps. With proper care and suitable burners they are nearly as satisfactory as gas lamps, and much cheaper in cost of erection and maintenance.

The recommendation of last year for a reduction from 6 to 5 cubic feet of gas per hour as the standard to burn in the gas lamps is repeated. A 5-foot burner is as satisfactory as one burning one-fifth more gas and the cost of maintenance would be proportionately less.

I heartily concur in the recommendation contained in the preceding annual report

of this office as to the desirability of the District authorities having exclusive charge of the street lamps, in this, that the work of lighting, extinguishing, cleaning, and repairing the lamps should be done by the employés of the District under the direction of the superintendent of lamps. Until this change is effected it is useless to think of having the necessary repairs made in a prompt and methodical manner.

Under the act of Congress approved March 3, 1883, the District government was lighting for the account of the Baltimore and Potomac Railroad, at the end of the fiscal year, 122 gas lamps, 25 oil lamps, and 3 arc lamps, and for the Baltimore and Ohio Railroad 51 gas lamps and 21 oil lamps. This service for the present year amounted to $4,439.29, an increase of $476.43 over the preceding year.

During the year 4,600 gas lamps were painted with two coats of zinc on inside of the lantern and one coat of dark paint on lamp-post. This work should be completed so soon as funds are available. There were also 256 lamp-posts standing along the line of the electric lights, and no longer used for gas lighting, taken up and reerected for gas lighting in other locations—a saving of $1,500 (cost of the posts) was thus effected.

I beg leave to call attention to the inadequate salary of the superintendent of lamps, and recommend that it be increased. The position is one of responsibility and labor.

The force of this office consists of 1 superintendent, 2 inspectors of gas and oil lighting, and 1 inspector of electric lighting. As the work in this office is constantly increasing, an addition to the present force of 1 clerk is absolutely necessary and is hereby recommended.

Very respectfully, your obedient servant,

WM. BURNELL,
Superintendent of Lamps.

Capt. CHARLES F. POWELL,
Engineer Commissioner, District of Columbia.

REPORT OF THE INSPECTOR OF PLUMBING.

OFFICE OF THE ENGINEER COMMISSIONER,
DISTRICT OF COLUMBIA, *Washington, November 5, 1894.*

CAPTAIN: I have the honor to submit herewith my thirteenth annual report of the operations of this office. The records show 1,809 inspections of plumbing work done in new houses; 3,361 inspections of plumbing work done in old houses, and 638 examinations of plumbing where repairs and alterations were necessary; making a total of 5,708 inspections of plumbing work.

Seven hundred and ninety-eight inspections were made of gas fitting in houses being erected, and 282 inspections of alterations and repairs in old houses, making a total of 1,080 inspections of gas fitting.

The discussion of sanitation, as applied to house plumbing, took shape in this city about fourteen years ago, when, through the efforts of a few friends of the important cause, Congress was induced to give the District Commissioners authority over plumbing introduced into new houses. The action of Congress in the beginning gave only limited authority, and additional legislation has been secured, from time to time, to which end the intelligent public, the daily newspapers, and a few earnest members of Congress have always aided the efforts of this office.

This city may claim, in some measure at least, to have pioneered the course of legislative control over house plumbing, as we had no American precedents to guide us, and the English standard was wholly inapplicable and notably defective. That our regulations have stimulated sanitary efforts elsewhere there can be no doubt.

The regulations now enforced in this District meet the requirements of domestic sanitation most satisfactorily. The absolute and immediate removal of all waste matter; the perfection of local conditions, such as ample light, ventilation, and avoidance of local odors, and the proper flushing of all drains and plumbing fixtures is now strictly observed, and greater interest and care by all parties concerned is being taken to improve these conditions, and new methods are being introduced every day in the interest of cleanliness and comfort.

The great demands upon this office, as is evidenced by the increased number of inspections, especially of old houses, best illustrates the popularity of the new regulations. Inspection of old houses now involves the application of the peppermint test, and a close examination of all the lines of drains.

There is a common and sensible impression among persons renting houses that modern plumbing is better and safer than old-fashioned plumbing; that the deep seal of a modern siphon closet is better than the polluted dry walls of an old-fashioned *one; that the instant discharge* of a modern flushing tank through the closet *is better than the trickling* of water in its course through an old pan closet; that

tiled surfaces surrounding the plumbing fixtures in a bath room are better than wood paneling, usually concealing putrefactive fermentations. In fact, the antiquarian will find no desirable examples in plumbing appliances.

It has come to the notice of this office that several of our leading real-estate agents decline to take charge of houses except owners obtain certificates of approval of the plumbing, and that persons renting show increased care on this subject.

In former reports I have called attention to notoriously unsanitary conditions in the public buildings of this city, and expressed regret that Congress had given no authority over them, and that of necessity, where improvements are not made, the bad conditions are continually aggravated.

I must again call attention to the great waste of water in this city, threatening as it does the health of the community. This, however, has greatly improved since the adoption of a tank supply for all water-closets located in yards as well as in the houses, and the use of lead supply pipe in place of galvanized iron. Undoubtedly millions of gallons of water have been wasted through the old spring valves of yard water-closets and the defective iron supply pipes to our houses. Another improvement can yet be made by requiring that the cold-water pipes to all plumbing fixtures above the kitchen be separated, as far as possible, from the heat of flues and the hot-water pipes. As the pipes are sometimes run it is usually necessary to draw off several gallons of water to get a cup of cold water to drink. This I am now endeavoring to avoid in the present construction of the water supply in houses.

The act of Congress authorizing the Commissioners to make and enforce regulations seems very explicit as to who shall engage in the business of plumbing, and as to the penalty for any violation of the regulations, but since there has been some difficulty in prosecuting persons not licensed, who have done plumbing work in houses, the regulations should be so amended as to include any person doing plumbing work without a license, either inside of a house or in connection with the street sewer and water main, and if in the opinion of the attorney for the District it is necessary, additional legislation should be asked of Congress to legalize the regulations.

Since this office has refused to inspect or give an official certificate for plumbing work done by persons not licensed by the Commissioners to engage in the business of plumbing, the owners and builders of houses are beginning to recognize the importance of avoiding the unlicensed plumber, for if a certificate is required by a purchaser or tenant, the plumbing work must be exposed and tested before officially certified to. We do not anticipate much more trouble from such cases, as public opinion as well as the law will certainly decide in favor of good and safe plumbing work.

That the gas-fitting regulations have proved beneficial to the property-owners and tenants is evidenced by the fact that gas consumed in houses piped according to these regulations has given much greater satisfaction than in houses where the work was done previous to the passage of the law governing such work. Heretofore it was customary for gas fitters to use nearly all three-eighths-inch pipe in piping medium-sized houses, and in cutting this pipe the orifice was considerably reduced, and in some cases as many as 20 burners were attached to this pipe, thus if 6 or 8 lights were burning at a time the light was reduced to a minimum, causing great inconvenience and trouble to the householder. There was no way to prevent this criminality then, but now the conditions are such that all gas-fitting work has intelligent supervision and the size of the pipes used throughout the house is specially provided for in the regulations. It is not only beneficial to the householder, but to the plumber, who now has some rule to govern him in making his estimate and bid for gas fitting in houses.

The assistant inspectors have made a good record, and proved themselves efficient and energetic in the discharge of their arduous duties. I regret that my repeated recommendation for an increase in their salary has not been approved. They certainly should have $100 per month, as is given to the inspectors of the health department, since their work is more laborious and requires more skill and intelligence.

I hope it may be consistent with the views of the Commissioners to make an allotment from the contingent fund for the use of this office, and that all of the assistant inspectors be furnished with bicycles. It is difficult to answer promptly the large number of calls for inspection of plumbing work depending on the street cars, as many houses are now being built outside of the city limits, and each one must be visited at least three times by the inspector before the plumbing work is completed.

In closing this report, I desire to express my appreciation of the kind consideration always shown me by your office.

Very respectfully, your obedient servant,

SAMUEL A. ROBINSON,
Inspector of Plumbing.

Capt. CHAS. F. POWELL,
Engineer Commissioner, District of Columbia.

REPORT OF THE INSPECTOR OF GAS AND METERS.

OFFICE OF THE U. S. INSPECTOR OF GAS AND METERS,
Washington, D. C., September 4, 1894.

GENTLEMEN: I have the honor herewith to submit report, showing the workings of the office of the inspector of gas and meters for the fiscal year ending June 30, 1894.

Very respectfully,

S. CALVERT FORD,
Inspector of Gas and Meters.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

ILLUMINATING POWER AND PURITY.

The illuminating power and purity of the gas supplied by the Washington Gas Light Company from June 24, 1893, to June 23, 1894, were as follows:

Photometric and purity tests in the old Post building laboratory.

Illuminating power during the year:		
Average	candles..	17.52
Highest	do....	19.89
Lowest	do....	15.58

June 5, 1894, the highest candle power was found.
December 4, 1893, the lowest candle power was found.

Ammonia in 100 cubic feet during the year:		
Average	grains..	1.30
Highest	do....	4.76
Lowest	do....	.34

June 23, 1894, the highest quantity of ammonia was found.
December 8, 1893, the lowest quantity of ammonia was found.

Sulphur in 100 cubic feet during the year:		
Average	grains..	7.86
Highest	do....	14.01
Lowest	do....	3.29

September 14, 1893, the highest quantity of sulphur was found.
March 6, 1893, the lowest quantity of sulphur was found.

Photometric and purity tests in the Southeast laboratory from November 7, 1893, to June 23, 1894.

Illuminating power during the year:		
Average	candles..	18.78
Highest	do....	21.89
Lowest	do....	16.68

November 7, 1893, the highest candle power was found.
April 2, 1894, the lowest candle power was found.

Ammonia in 100 cubic feet during the year:		
Average	grains..	.85
Highest	do....	2.04
Lowest	do....	.34

February 27, 1894, the highest quantity of ammonia was found.
May 25, 1894, the lowest quantity of ammonia was found.

Sulphur in 100 cubic feet during the year:		
Average	grains..	7.41
Highest	do....	12.36
Lowest	do....	4.80

April 21, 1894, the highest quantity of sulphur was found.
January 25, 1894, the lowest quantity of sulphur was found.

Photometric tests in Northwest laboratory from October 31, 1893, to June 23, 1894.

Illuminating power during the year:

Average	candles..	17.76
Highest	do....	20.51
Lowest	do....	16.07

November 20, 1893, the highest candle power was found.
April 28, 1894, the lowest candle power was found.

Recapitulation.

Three stations:

Average mean illuminating power	candles..	18.02
Average maximum illuminating power	do....	20.76
Average minimum illuminating power	do....	16.11

Two stations:

Average mean quantity of ammonia	grains..	1.07
Average maximum quantity of ammonia	do....	3.40
Average minimum quantity of ammonia	do....	.34
Average mean quantity of sulphur	do....	7.63
Average maximum quantity of sulphur	do....	13.18
Average minimum quantity of sulphur	do....	4.04

On one occasion, namely, December 4, 1893, the gas supplied by this company, as determined in old-Post-building laboratory, was of less illuminating power than 16 candles; the power found only equaled 15.58 standard candles.

The illuminating power and purity of the gas supplied by the Georgetown Gaslight Company from June 24, 1893, to June 23, 1894, was as follows:

Illuminating power during the year:

Average	candles..	16.85
Highest	do....	21.61
Lowest	do....	15.67

June 23, 1894, the highest candle power was found.
January 12, 1894, the lowest candle power was found.

Ammonia in 100 cubic feet during the year:

Average	grains..	2.10
Highest	do....	5.15
Lowest	do....	.34

June 26, 1893, the highest quantity of ammonia was found.
January 12, 1894, the lowest quantity of ammonia was found.

Sulphur 100 cubic feet during the year:

Average	grains..	15.97
Highest	do....	24.73
Lowest	do....	10.99

August 1, 1893, the highest quantity of sulphur was found.
August 18, 1898, the lowest quantity of sulphur was found.

On one occasion the illuminating power of the gas supplied by this company was found to be less than 16 candles, namely, January 12, 1894, 15.67 candles.

On one occasion the quantity of ammonia found exceeded slightly the 5 grains allowed.

On six occasions the quantity of sulphur found was slightly in excess of the 20 grains allowed.

SPECIFIC GRAVITY.

The specific gravity of the gas supplied by the Washington Gaslight Company was as follows:

Average of the three stations:

Mean	.605 air 1,000
Maximum	.660 air 1,000
Minimum	.550 air 1,000

The specific gravity of the gas supplied by the Georgetown Gaslight Company was as follows:

Mean	.427 air 1,000
Highest	.478 air 1,000
Lowest	.409 air 1,000

PRESSURE OF THE GAS.

The pressure of the gas supplied by the Washington Gaslight Company was as follows:

Average of the three stations:

Mean	inches..	1.88
Maximum	do....	2.93
Minimum	do....	1.31

The pressure of the gas supplied by the Georgetown Gaslight Company was as follows:

Mean	inches..	1.61
Highest	do....	3.66
Lowest	do....	.71

GAS SUPPLY.

The illuminating power of the gas supplied by the Washington Gaslight Company during the year ending June 23, 1894, by average of results obtained at the three testing stations, was found to equal 18.02 standard candles.

During the months in the autumn of 1893 considerable complaint was made of the poor supply, and in some instances of the quality of the gas furnished by this company. These complaints were largely owing to stoppages in the mains, service pipes, and meters, occasioned by condensation, and on several occasions to the illuminating power of the gas being less than the previously high quality furnished.

The illuminating power of the gas determined at the old Post building laboratory, corner of Tenth and D streets NW., averaged 17.52 standard candles. This is 0.47 of a candle less than it was by average during the previous year.

One default in candle power occurred in this laboratory during the year, namely, December 4, 1893, when the illuminating power was only found to equal 15.58 candles. This is something less than half a candle in a consumption of 5 cubic feet per hour. This is the first default that has occurred in the candle power of the gas supplied by this company since October 19, 1891.

Inspections have been made at the Southeastern laboratory, located at the corner of D and Fifth streets, since November 7, 1893. The quality of the gas manufactured at the works in that section of the city was unexceptionally good; the illuminating power was high, averaging 18.78 standard candles. The gas made at these works is almost exclusively carbureted-water gas.

Candle-power determinations have also been made at the Northwestern laboratory, located at 1335 Fourteenth street. Since October 30, 1893, the illuminating power of the gas in this section of the city has not been so high as that found in the southeast, but still the illuminating power at this point averaged 17.76 standard candles.

The gas manufactured at the works, Twenty-sixth and G streets NW., and inspected at the above-mentioned laboratory, is a mixture of coal and water gases in varying proportions.

The gas furnished by the Georgetown Gas Light Company during the past year has improved both in quality and supply. The enlarged mains laid during the previous year have had a salutary effect in diminishing the complaints of want of supply.

On one occasion only was the illuminating power of the gas found to be less than the required standard, 16 candles, namely, January 12, when the illuminating power was 15.67 candles; this is only 0.33 of 1 candle less, with a consumption of 5 cubic feet per hour.

On one occasion the quantity of ammonia found slightly exceeded the 5 grains allowed; this was only 0.15 of 1 grain in excess.

On six occasions the quantity of sulphur found was somewhat above the 20 grains permitted to be present; the excess of sulphur on five of the occasions mentioned was between 0.19 and 0.83 of 1 grain, and it was on one occasion only that the quantity of sulphur found exceeded 1 grain.

Compared with previous years, this record is a most excellent one, the gas manufactured by the Georgetown Gas Light Company is exclusively a product of coal, and the illumination derived from it has given general satisfaction.

INSPECTION AND PROVING OF METERS.

Three thousand eight hundred and sixty-five meters were inspected and proved by this office from June 24, 1893, to June 23, 1894. With the exception of two meters inspected and proved for the Alexandria Gas Works, the above number was inspected and proved for the Washington and Georgetown Gas Light companies and for consumers of gas in Washington and Georgetown.

The results of inspection were as follows: 223 registered fast, average error, 3.93 per cent; 70 registered slow, average error, 5.15 per cent; 3,567 registered within the limits allowed by law, namely, 2 per cent either way, and 3 did not register the gas flowing through them.

Five hundred and sixty-five of the above-described meters were ordered out and inspected and proved on complaint.

Five hundred and fifty-five were complained of by consumers of gas. Of this number 205 registered fast, average error 4.64 per cent; 63 registered slow, average error, 5.59 per cent; 286 registered within the limits allowed, and 1 did not register the gas flowing through it.

Ten meters were complained of by the gas companies, 4 registered fast, average error, 3.32 per cent; 2 registered slow, average error, 4.74 per cent, and 4 registered within the limits allowed.

FEES COLLECTED FOR METER INSPECTIONS.

The sum of $1,259 was collected for meter inspections from June 24, 1893, to June 23, 1894, and paid to the collector of the District of Columbia to be placed to the credit of the United States and District of Columbia in equal parts.

I respectfully recommend that the impurity known as sulphurated hydrogen be included with the other impurities already under supervision, as provided for in section 2 of the act regulating gas works, approved June 23, 1894, and that a penalty clause be added to the provision of the act of March 3, 1893, entitled "An act making appropriations for the expenses of the Government of the District of Columbia for the fiscal year ending June 30, 1894, and for other purposes," with reference to placing in service meters from which the heads have been removed, without being reinspected, proved, and sealed by this office, as provided for by said act.

I further recommend that a suitable person be appointed to perform clerical services and assist generally in the work required to be performed in the laboratories.

The recommendation made in previous reports of this office, that the salary of the messenger be increased from $480 to $600 per annum, is again renewed.

The work in the laboratories performed by this employé, coupled with the regular duties of a messenger, entitle him to the additional compensation recommended.

S. CALVERT FORD,
Inspector of Gas and Meters.

Report of the illuminating power and purity of the gas supplied by the Washington Gaslight Company from June 24, 1893, to June 23, 1894.

[As determined in the old-Post-building laboratory, Tenth and D streets NW.]

Month.	Number of observations.	Illuminating power in sperm candles.			Quantity of ammonia in 100 cubic feet.			Quantity of sulphur in 100 cubic feet.		
		Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.
					Grains.	*Grains.*	*Grains.*	*Grains.*	*Grains.*	*Grains.*
July	24	17.33	18.66	16.04	1.17	1.87	0.42	9.11	11.26	7.48
August	27	17.26	18.33	16.13	.87	1.53	.38	8.36	9.96	6.87
September	26	17.13	18.57	16.13	.97	1.53	.51	9.22	14.01	6.54
October	23	17.78	19.12	16.75	1.39	2.55	.56	5.79	10.16	3.98
November	27	17.83	19.06	16.26	1.44	1.87	.85	6.17	8.24	4.67
December	24	16.96	18.87	15.58	.94	1.87	.34	8.70	10.99	7.00
January	23	17.05	18.49	16.30	.85	1.53	.34	7.44	8.93	5.90
February	25	17.15	19.08	16.29	.78	1.36	.51	7.29	9.75	4.67
March	24	17.75	18.48	16.79	.70	1.02	.51	7.73	11.12	3.29
April	26	17.49	18.59	16.06	1.12	2.04	.68	8.33	11.30	6.18
May	26	18.19	19.19	17.00	2.79	4.25	1.70	8.11	10.71	6.32
June	26	18.39	19.89	16.74	2.65	4.76	1.70	8.12	9.74	6.52
Total	301	210.31	.....	.....	15.67	.....	.....	94.37	.....	.....

Average for the year.

Illuminating power in sperm candles:
- Mean* 17.52
- Highest (June 5, 1894) 19.89
- Lowest (December 4, 1893) 15.58

Quantity of ammonia in 100 cubic feet:
- Mean ..... grains.. 1.30
- Highest (June 23, 1894) ..... do.... 4.76
- Lowest (December 8, 1893) ..... do.... .34

Quantity of sulphur in 100 cubic feet:
- Mean ..... do.... 7.86
- Highest (September 14, 1893) ..... do.... 14.01
- Lowest (March 6, 1894) ..... do.... 3.29

On one occasion the illuminating power of the gas supplied by this company was found not to equal 16 standard candles.

Report of the illuminating power and purity of the gas supplied by the Washington Gaslight Company from June 24, 1893, to June 23, 1894.

[As determined in laboratory, corner Fifth and D streets, SE.]

Month.	Number of observations.	Illuminating power in sperm candles.			Quantity of ammonia in 100 cubic feet.			Quantity of sulphur in 100 cubic feet.		
		Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.
					Grains.	*Grains.*	*Grains.*	*Grains.*	*Grains.*	*Grains.*
July										
August										
September										
October										
November	15	19.96	21.89	17.91	1.16	1.87	0.85	6.45	8.24	3.70
December	24	18.82	20.93	17.71	.96	1.70	.34	7.35	10.99	6.32
January	23	18.46	19.71	17.46	.68	1.02	.34	5.71	7.41	5.08
February	26	18.17	21.15	17.18	.66	1.19	.34	6.10	8.88	4.80
March	24	18.17	18.83	17.55	.87	2.04	.34	7.15	9.06	5.08
April	26	18.02	19.12	16.68	.83	1.19	.51	9.30	12.36	6.59
May	26	18.91	20.13	17.79	.82	1.19	.51	8.50	10.57	6.87
June	26	19.73	21.31	17.64	.85	1.36	.34	8.74	10.57	7.69
Total	190	150.24			6.83			59.30		

Average for the year.

Illuminating power in sperm candles:
- Mean* 18.78
- Highest (November 7, 1893) 21.89
- Lowest (April 2, 1894) 16.68

Quantity of ammonia in 100 cubic feet:
- Mean ..... grains.. .85
- Highest (February 27, 1894) ..... do.... 2.04
- Lowest (May 25, 1894) ..... do.... .34

Quantity of sulphur in 100 cubic feet:
- Mean ..... grains.. 7.41
- Highest (April 21, 1894) ..... do.... 12.36
- Lowest (January 25, 1894) ..... do.... 4.80

* Each observation consists of 20 readings on the Bunsen photometer, at intervals of one minute.

Report of the illuminating power and purity of the gas supplied by the Washington Gaslight Company from June 24, 1893, to June 23, 1894.

[As determined in laboratory, 1335 Fourteenth street, NW.]

Month.	Number of observations.	Illuminating power in sperm candles.		
		Mean.	Highest.	Lowest.
July				
August				
September				
October				
November	21	17.88	20.51	16.94
December	24	17.55	19.60	16.33
January	23	17.57	18.59	16.30
February	26	17.85	18.89	16.96
March	24	17.96	18.81	16.53
April	26	17.63	18.48	16.19
May	26	18.17	20.08	16.07
June	26	17.50	19.29	16.07
Total	196	142.11		

Average for the year.

Illuminating power in sperm candles:
- Mean * 17.76
- Highest (November 20, 1893) 20.51
- Lowest (April 28 and June 13, 1894) 16.07

Report of the illuminating power and purity of the gas supplied by the Georgetown Gaslight Company from June 24, 1893, to June 23, 1894.

[As determined in laboratory, 1338 Thirty-second street NW.]

Month.	Number of observations.	Illuminating power in sperm candles.			Quantity of ammonia in 100 cubic feet.			Quantity of sulphur in 100 cubic feet.		
		Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.
					Grains.	*Grains.*	*Grains.*	*Grains.*	*Grains.*	*Grains.*
July	24	16.43	17.03	16.03	3.57	5.15	2.04	13.84	16.07	11.07
August	27	16.52	17.24	16.03	2.72	3.40	2.21	15.34	24.73	10.99
September	26	16.95	18.26	16.08	2.75	3.40	2.04	15.00	17.17	12.22
October	23	17.08	17.83	16.46	2.84	3.91	2.04	14.22	16.21	12.09
November	27	17.03	18.62	16.20	1.55	2.36	1.02	16.72	18.26	14.21
December	24	16.96	18.25	16.15	1.26	2.12	.71	16.87	20.61	14.62
January	23	16.82	17.53	15.67	1.49	2.95	.34	18.07	20.19	16.20
February	25	16.67	17.39	16.01	1.35	2.55	.85	16.54	18.04	14.15
March	24	16.58	18.04	16.03	1.66	2.55	1.27	16.72	18.40	15.76
April	26	17.20	18.51	16.50	1.79	2.40	1.38	16.95	19.52	14.95
May	26	17.17	18.76	16.01	2.69	3.64	2.10	16.49	21.27	11.48
June	26	16.90	21.61	16.08	2.73	3.54	2.08	14.98	20.83	11.98
Total	301	202.31			26.40			191.74		

Average for the year.

Illuminating power in sperm candles:
- Mean * 16.85
- Highest (June 23, 1894) 21.61
- Lowest (January 12, 1894) 15.67

Quantity of ammonia in 100 cubic feet:
- Mean ..... grains.. 2.10
- Highest (June 26, 1893) ..... do.... 5.15
- Lowest (January 12, 1894) ..... do.... .34

Quantity of sulphur in 100 cubic feet:
- Mean ..... grains.. 15.97
- Highest (August 1, 1893) ..... do.... 24.73
- Lowest (August 18, 1893) ..... do.... 10.99

* Each observation consists of 20 readings on the Bunsen photometer at intervals of one minute.

On one occsion during the year the gas supplied by this company was found to be of less illuminating power than 16 candles, namely, January 12, 1894; candle power, 15.67.

On one occasion the quantity of ammonia found exceeded the 5 grains allowed.

On six occasions the quantity of sulphur found exceeded the 20 grains allowed.

Report showing the pressure of gas supplied by the Washington Gaslight Company as registered in this office (old Post building, corner Tenth and D streets), from July 1, 1893, to June 30, 1894.

Month.	Mean.	Maximum.	Minimum.
	Inches.	*Inches.*	*Inches.*
July	1.82	2.99	1.36
August	2.09	3.05	1.48
September	1.61	2.17	1.24
October	1.55	2.02	1.14
November	1.59	2.35	1.08
December	1.76	2.59	1.25
January	1.56	2.03	1.21
February	1.56	1.97	1.28
March	1.57	2.09	1.24
April	1.55	2.00	1.24
May	1.47	2.06	1.17
June	1.55	2.17	1.16

Average mean pressure	inches..	1.64
Maximum pressure (August 3, 1893)	do....	3.05
Minimum pressure (November 14, 1893)	do....	1.08

For the months of July, August, September, October, November, December, January, and February the pressure was taken during the hours that street lamps were lighted. For the months of March, April, May, and June, from sunset to sunrise.

Report showing the pressure of gas supplied by the Washington Gaslight Company, as registered in this office (northwest station, 1335 Fourteenth street), from November 1, 1893, to June 30, 1894.

Month.	Mean.	Maximum.	Minimum.
	Inches.	*Inches.*	*Inches.*
November	1.75	2.65	1.36
December	2.06	2.87	1.50
January	1.84	2.42	1.47
February	1.78	2.20	1.42
March	1.84	2.39	1.51
April	1.82	2.31	1.52
May	1.70	2.10	1.30
June	1.83	2.49	1.22

Average mean pressure	inches..	1.82
Maximum pressure (December 9, 1893)	do....	2.87
Minimum pressure (June 12, 1894)	do....	1.22

For the months of November, December, January, and February the pressure was taken during the hours that street lamps were lighted. For the months of March, April, May, and June, from sunset to sunrise.

Report showing the pressure of gas supplied by the Washington Gaslight Company as registered in this office (southeast station, corner Fifth and D streets), from November 1, 1893, to June 30, 1894.

Month.	Mean.	Maximum.	Minimum.
	Inches.	*Inches.*	*Inches.*
November	2.31	2.88	1.95
December	2.35	2.99	1.71
January	2.29	2.95	1.75
February	2.27	2.80	1.85
March	2.17	2.70	1.77
April	2.15	2.91	1.77
May	1.95	2.88	1.65
June	1.95	2.41	1.65

Average mean pressure	inches..	2.18
Maximum pressure (December 10, 1893)	do....	2.99
Minimum pressure (May 20 and June 28 and 29, 1894)	do....	1.65

For the months of November, December, January and February the pressure was taken during the hours that street lamps were lighted. For the months of March, April, May, and June, from sunset to sunrise.

Report showing the pressure of gas supplied by the Georgetown Gaslight Company, as registered in this office, 1338 Thirty-second street, Georgetown, from July 1, 1893, to June 30, 1894.

Month.	Mean.	Maximum.	Minimum.
	Inches.	*Inches.*	*Inches.*
July	1.46	2.95	.71
August	1.45	2.29	.98
September	1.53	2.70	1.12
October	1.48	2.48	1.08
November	1.41	3.31	1.07
December	1.86	2.97	1.05
January	1.59	2.75	1.
February	1.65	2.80	.87
March	1.75	2.89	1.04
April	1.68	3.10	.94
May	1.74	2.98	1.08
June	1.80	3.66	1.06

Average mean pressure	inches..	1.61
Maximum pressure, June 28, 1894	do....	3.66
Minimum pressure, July 18, 1893	do....	.71

For the months of July, August, September, October, November, December, January, and February the pressure was taken during the hours that street lamps were lighted. For the months of March, April, May, and June, from sunset to sunrise.

Report of meters inspected and proved for the Washington Gaslight Company and for consumers of gas in Washington, from June 24, 1893, to June 23, 1894.

Month.	Meters tested.	New meters for company.				Repaired meters for company.						Consumers' meters on complaint of consumers.						Consumers' meters on complaint of company.				Consumers' meters on complaint of company that did not register.
		Total.	Fast.		Correct.	Total.	Fast.		Slow.		Correct.	Total.	Fast.		Slow.		Correct.	Total.	Fast.		Correct.	
			No	P. ct.			No	P. ct.	No	P. ct.			No	P. ct.	No	P. ct.			No	P. ct.		
July	140	....	....	.....	..	133	1	2.50	....	.....	132	7	2	3.66	2	7.70	3	..	....	.....	..	.....
Aug	267	6	2	3.95	4	253	1	2.50	2	4.24	250	8	3	4.27	1	4.50	4	..	....	.....	..	.....
Sept	272	3	....	.....	3	255	1	5.66	....	.....	254	14	3	4.52	7	5.82	4	..	....	.....	..	.....
Oct	460	185	....	.....	185	248	....	.....	1	3.58	247	27	13	3.43	5	8.53	9	..	....	.....	..	.....
Nov	501	266	1	3.33	265	194	....	.....	....	.....	194	41	17	4.66	3	6.13	21	..	....	.....	..	.....
Dec	404	260	4	3.83	256	101	....	.....	....	.....	101	43	15	4.66	9	6.81	19	..	....	.....	..	.....
Jan	287	*112	1	4.00	109	76	....	.....	....	.....	76	97	40	4.02	9	8.89	48	2	1	3.16	1	.....
Feb	350	73	....	.....	73	130	....	.....	....	.....	130	147	53	4.92	16	6.84	77	..	....	.....	..	1
Mar	239	....	....	.....	....	204	....	.....	....	.....	204	35	11	5.02	1	5.83	23	..	....	.....	..	.....
Apr	274	12	....	.....	12	242	3	3.27	....	.....	239	20	12	5.14	1	8.00	7	..	....	.....	..	.....
May	249	25	....	.....	25	197	....	.....	2	6.33	195	26	6	3.99	2	5.16	18	1	....	.....	1	.....
June	199	50	....	.....	50	130	....	.....	....	.....	130	19	5	5.46	1	5.33	13	..	....	.....	..	.....
Total	3,642	*992	8	†3.77	982	2,163	6	†3.48	5	†4.71	2,152	844	180	†4.47	57	†6.62	246	3	1	3.16	2	1

* Two do not register. † Average.

During the fiscal year ending June 30, 1894, this office inspected and proved for the Washington Gas-Light Company and for consumers of gas in Washington 3,642 meters. Of this number 195 registered fast, average error 3.72 per cent; 62 registered slow, average error 5.66 per cent; 3,382 registered within the limits allowed, namely, 2 per cent either way, and 3 did not register the gas flowing through them.

Two meters were tested for the Alexandria Gas Works in December, 1893—1 fast, *7.25 per cent*; 1 correct.

Report of meters inspected and proved for the Georgetown Gaslight Company and for consumers of gas in Georgetown, from June 24, 1893, to June 23, 1894.

Month.	Meters tested.	New meters for company.		Repaired meters for company.		Consumers' meters on complaint of consumers.						Consumers' meters on complaint of company.					
		Total.	Correct.	Total.	Correct.	Total.	Fast.		Slow.		Correct.	Total.	Fast.		Slow.		Correct.
							No.	P. ct.	No.	P. ct			No.	P. ct.	No.	P. ct.	
July	27	24	24			3	2	5.16			1						
August	18			16	16	2					2						
September																	
October	2					2					2						
November	36	12	12	15	15	8	2	4.00	1	4.66	5	1					1
December	23	12	12			11	2	8.24	3	4.82	6						
January	21	12	12			9	2	3.66			7						
February	16					12	9	3.85			3	4	3	3.49	1	3.66	
March	47	1	1	31	31	15	4	3.77	1	5.16	10						
April	26			20	20	4	1	4.50			3	2			1	5.83	1
May	1					1	1	3.85									
June	4					4	2	6.33	1	3.66	1						
Total	221	61	61	82	82	71	25	*4.81	6	*4.57	40	7	3	3.49	2	*4.74	2

*Average.

During the fiscal year ended June 30, 1894, this office inspected and proved for the Georgetown Gas-Light Company and for consumers of gas in Georgetown 221 meters. Of this number 28 registered fast, average error 4.15 per cent; 8 registered slow, average error 4.65 per cent; 185 registered within the limits allowed, namely, 2 per cent either way.

PERMIT CLERK.

OFFICE OF THE ENGINEER COMMISSIONER,
DISTRICT OF COLUMBIA,
Washington, D. C., September 20, 1894.

CAPTAIN: I have the honor to submit herewith the annual report of the permit clerk's office for the fiscal year ended June 30, 1894.

The permits issued during the year were:

Water connections	1,677	
Water repairs	790	
Water specials	275	
		2,742
Sewer connections	1,938	
Sewer repairs	1,061	
Sewer specials	231	
		3,230
Gas and electric light connections	1,163	
Gas and electric light repairs	202	
Gas and electric light specials	3	
		1,368
Lay and repair conduits and gas mains	126	
Erect and replace poles and posts	116	
Lay sewers and drains	5	
Build manholes (Chesapeake and Potomac Telephone Company)	10	
Lay water mains	1	
Lay and relay railroad tracks	2	
String wires	5	
Drive across sidewalks	10	
Make excavations	1	
Miscellaneous	16	
Permits to employés, District of Columbia	432	
		724
Grand total		8,084

There has been a decrease in both the amount paid for permits and the number of permits issued as compared with the fiscal year ending June 30, 1893.

Permits issued during the fiscal year—

1892–'93	12,989
1893–'94	8,064

The following is a comparison of the number of permits issued during the three preceding years and the amount of money paid the collector of taxes, District of Columbia, during that time:

	Permits issued.	Fees paid.
1890–'91	5,561	$7,638
1891–'92	9,456	8,631
1892–'93	12,989	12,214
1893–'94	8,064	7,024

The falling off during the last fiscal year is due to several causes, the principal one as compared to the preceding fiscal year being the unprecedented number of permits issued for repairing water-service pipes during the winter of 1892–'93, and also to the general stagnation in building during the past fiscal year.

The work of this office has been increased, as in the past, by the continued improvements in the sidewalks and roadways of the avenues, streets, alleys, roads, etc., in the District of Columbia. When such pavements are displaced by plumbers or other persons having permits to make excavations, a deposit is required to cover the cost of the necessary repairs. The registered plumbers are required to make a deposit of $50 with the collector of taxes, District of Columbia, and against this deposit is charged the costs of repairing the cuts made by them. The location of the cuts is reported to the superintendent of streets weekly and they are repaired by the employés of that department. When the amount charged against the account amounts to $40, the plumber is notified by this office and must bring his balance to the original amount before additional permits can be issued to cut the improved pavements. No permit to do any work contemplated by the plumbing regulations can be issued to any plumber who fails to settle his indebtedness after being notified by this office.

The vouchers showing cost of each cut repaired are paid by the auditor, District of Columbia; a copy of each repair and deposit is kept in this office. There were 131 of these accounts open during the year.

Owing to the continued laying of underground electric-light, telegraph and telephone wires in the sidewalks and roadways, the greatest care has to be exercised by this office to notify all persons making excavations of the location of such conduits, so as to protect them from being injured by the tools of the workmen.

Some more rapid mode of transportation than by street cars should be furnished the sewer-tappers to enable them to make inspections of the work done by plumbers in connecting to and repairing sewer laterals. The sewer-tappers are now given 50 car tickets per month; these seldom last longer than the 15th of the month, owing to the distance and number of inspections necessary in looking after work in the suburban villages, and plumbers are sometimes delayed in having their work inspected. I would respectfully recommend that the number of car tickets allowed be increased to at least 100 per month.

All permits to make excavations to make connection with or repair underground constructions are issued from this office. With the exception of work done by employés of the District of Columbia and special permits allowed by the plumbing regulations, a fee of $1 is charged for each excavation made, this fee being paid the collector of taxes and his receipt entered upon the application. The fees so paid were to April 23, 1892, deposited by him to the credit of the District of Columbia; since that date only one-half has been so credited, the other half going to the credit of the United States. There seems no more reason to pay the United States one-half of this fund than the other funds received for taxes, especially that received for water permits. The water department being self-sustaining, all moneys received from any source connected with it should be credited in full.

New branches of work have been added to this office during the year, adding much to the responsibility, it now being charged with receiving all complaints with regard to water supply, sewerage, pavements, and other works under the engineer department. The office has been furnished with tracings on a scale of 50 feet to the inch of all sewers within certain localities and the employés of the sewer department are making additional tracings, so that there will soon be maps on the above scale showing the entire sewerage system of the District of Columbia. As

new works are constructed the tracings are changed, being replaced by others posted to date, so there is always the latest record at hand to furnish the public with desired information.

It is hoped that the duties of this branch of the work may be so well understood by the public that the officers in charge of the different departments may not be annoyed by being interrupted while studying out technical questions always before them, when by a request to this office the proper blanks may be furnished, or the person making the inquiry be referred to the head of the proper division to have their interrogations answered. This office is advantageously situated at the front door on the first floor of the building for an information bureau, the only drawback being the crowded condition of the small space allotted to it.

For the payment of salaries and support of the permit office I would recommend the following amounts:

One permit clerk ($400 submitted)	$1,600
One assistant permit clerk ($120 submitted)	1,000
Two sewer-tappers ($200 each submitted)	2,400
Contingent expenses	500
Total	$5,500

Respectfully submitted.

H. M. WOODWARD,
Permit Clerk.

Capt. CHAS. F. POWELL,
Corps of Engineers, U. S. A.,
Engineer Commissioner, District of Columbia.

SURFACE DEPARTMENT.

Supervision of roadway improvements, sidewalks, bridges, subdivision of land, care of property, supervision of street railways and overhead electric lines, trees along highways, and inspection of engineering materials.

Capt. G. J. FIEBEGER,
Corps of Engineers, U. S. Army, in charge.

GEORGE H. BAILEY,
Computing Engineer.
GEORGE N. BEALE,
Superintendent of County Roads.
WM. P. RICHARDS,
In Charge of Surveys.
E. Y. BEGGS,
General Inspector.
A. W. DOW,
Inspector of Asphalt and Cements.
H. N. MOSS,
Superintendent of Streets.
CONWAY B. HUNT,
Engineer of Bridges.
LOUIS T. BOISEAU,
Superintendent of Property.
TRUEMAN LANHAM,
Superintendent of Parking.

REPORT OF OFFICER IN CHARGE.

WASHINGTON, D. C., *October 31, 1894.*

SIR: I have the honor to submit the following report of the operations of the surface department for the fiscal year ending June 30, 1894. The nature of the work is shown in the following statement of appropriations and expenditures:

Nature of work.	Appropriation, 1893–'94.	Expenditures and liabilities.	Estimates, 1895–'96.
For work on streets and avenues	$200,000.00	$200,000.00	$600,000.00
Construction of county roads and suburban streets*	39,000.00	37,462.43	150,000.00
Improvements and repair of alleys and construction of sewers and sidewalks (permit system)†	108,000.00	108,000.00	120,000.00
Repairs to concrete pavements	150,000.00	149,999.96	150,000.00
Repairs to streets, avenues, and alleys	40,000.00	39,999.98	40,000.00
Repairing sidewalks and curbs			10,000.00
Repairs to county roads	40,000.00	39,977.62	60,000.00
Care of bridges	19,000.00	18,605.39	20,000.00
Surveys on account of land subdivision	3,000.00	2,994.51	2,500.00
Parking commission	18,000.00	17,993.31	36,000.00
Contingent expenses, engineer stables	6,000.00	5,989.38	5,500.00
Rent of property yard	300.00	300.00	300.00
Board of examiners, steam engineers	900.00	900.00	900.00

*Massachusetts avenue, incomplete. † For sidewalks and alleys only.

WORK ON STREETS AND AVENUES.

The following summary shows the amount of work done since the last annual report:

Sheet asphalt on concrete, 6-inch base	square yards	22,697.62
Sheet asphalt on concrete, 4-inch base	do	7,875.58
Sheet asphalt on cobble base	do	5,736,36
Asphalt block	do	8,737.71
Granite block	do	10,687.82
Vitrified brick pavement	do	2,964.28

Brick sidewalk laid and relaid	square yards..	11,724.44
Curb laid and relaid	linear feet..	34,554.44
Cobble gutters and crossings	square yards..	4,694.84
Vitrified brick gutters	do....	3,819.87
Cobble removed	do....	22,873.30
Old curb removed	linear feet..	5,908.90
Grading earth	cubic yards..	49,405
Grading macadam	do....	2,301
Gravel roadway	square yards..	11,255.01

One thousand one hundred and nineteen and six-tenths square yards charged against permit work.

This work was all done by contract at the following prices:

Sheet asphalt on 6-inch concrete base, exclusive of grading, per square yard	$2.10 to $2.18½
Sheet asphalt on 4-inch concrete base, exclusive of grading, per square yard	1.90 to 1.93½
Asphalt block on gravel base, exclusive of grading, per square yard	2.00
Granite block on gravel base, exclusive of grading and cost of blocks, per square yard	.96
Granite blocks delivered at yards, $49 to $52 per M., per square yard	2.04½ to 2.17
Ordinary macadam, 12½ inches thick, exclusive of grading, per square yard	.88 to 1.00
Brick sidewalk, exclusive of grading and price of brick, per square yard	.23 to .27
Relaying same, exclusive of grading and price of brick, per square yard	.18 to .30
Bricks, paving, delivered on streets, $10.75 per M., per square yard.	.40
6 by 20 inch granite curb set, exclusive of cost of curb, per linear foot	.18 to .40
6 by 20 inch granite curb delivered at property yard, per linear foot	.99
8 by 8 inch granite curb on 6-inch concrete base, exclusive of cost of curb, per linear foot	.35 to .40
8 by 8 inch granite curb delivered at property yard, per linear foot.	.84½
Resetting 6 by 20 inch granite curb, per linear foot	.10 to .12
Cobble gutters, exclusive of material, per square yard	.1699
Vitrified brick gutters of 6-inch concrete base, exclusive of cost of brick, per square yard	1.18 to 1.30
Vitrified bricks delivered at property yards, per M	17.83
Cobble taken up and removed to property yards, per square yard	.10 to .15
Old curb taken up and removed to property yards, per linear foot.	.06 to .07
Grading earth, 2,500 feet haul, per cubic yard	.30 to .35
Grading macadam, 2,500 feet haul, per cubic yard	.35 to .60
Hauling earth and macadam each 500 feet over first 2,500 feet	.01½ to .05

As stated in my last report, about 20,000 square yards of asphalt paving was awarded to Mr. Thomas H. Thomas, which was to be laid with Bermudez asphalt.

As it was the first use of this material in the District, the progress of the work under this contract and its results were watched with considerable interest. The contract was faithfully executed and the results have been thoroughly satisfactory. I would recommend that this asphalt be placed on an equality with Trinidad Lake in all future bids for street work.

A material reduction in the cost of these pavements will no doubt result from the competition thus introduced.

A factory for making asphalt block was started in this city during the year, and now all blocks used in this city are supplied by this factory. There has resulted a very considerable decrease in the cost of these blocks as furnished to the city. The composition has also been changed, and those now used consist of 13 per cent of asphalt, 10 per cent of limestone dust, and 77 per cent of crushed gneiss. These blocks *are superior to any* previously laid.

A very important provision was passed at the last session of Congress, directing that all sewer and water connections should be made before a street was paved. This will prevent the useless cutting of new pavements and increase their life. A similar provision should be made with respect to underground conduits for electric wires, especially for District use. If a well-digested plan were adopted and the conduits constructed as the streets were paved it would prevent an enormous outlay for repairs to pavements when it is finally decided to put the District of Columbia wires underground.

It is to be regretted that the appropriation for street pavements has been materially reduced during the last five years. At present it is less than at any time since the formation of the present government. There should be a considerable increase in these appropriations at once, to keep pace with the building operations in the city.

The work under this appropriation is under the immediate charge of the computing engineer, Mr. George H. Bailey and his assistants. His report gives the details of the cost of improving each street.

The condition of the streets of Washington and its suburbs on July 1, 1894, is shown in detail in the tabular statement in the appendix.

CONSTRUCTING COUNTY ROADS AND SUBURBAN STREETS.

The following table gives a summary of the amount of work done on these roads and streets during the fiscal year 1894:

Granite block	square yards..	2,641.22
Macadam	do....	69,104.96
Brick sidewalk	do....	4,307.50
Curb laid	linear feet..	5,971.05
Cobble gutters, etc	square yards..	10,465.84
Old cobble removed	do....	2,401.68
Grading earth	cubic yards..	67,805.93

The prices were about the same as for similar work in the city. The details as to streets improved will be found in the report of the computing engineer.

The following streets were improved under this appropriation: Brightwood avenue, Connecticut avenue extended, Jefferson street (Anacostia), Champlain avenue, and Sixteenth street extended. The grading of Massachusetts avenue extended was not undertaken during the fiscal year, the permission of Congress being necessary to open the street through the grounds of the Naval Observatory. This permission has since been granted and the work is in progress.

It seems hardly necessary to call attention to the necessity of securing larger appropriations for the improvement of suburban streets. In the entire region just north of the city there are few improved streets; the greater number of them are not even graded and are almost impassable.

GRADING STREETS, ALLEYS, AND ROADS.

This appropriation is for the hire of carts, purchase of tools, etc., for use of the chain gang, which is employed in grading the unimproved streets in the eastern section of the city. The amount of the appropriation should be slightly increased to allow of this work being prosecuted during the entire year; at present it is only sufficient for the hire of carts, etc., during a period of six months. Much valuable work can

thus be secured at a very slight cost, without considering the advantage of keeping the prisoners employed in the open air, instead of confining them in the workhouse.

IMPROVEMENT AND REPAIR OF ALLEYS AND SIDEWALKS AND CONSTRUCTION OF SEWERS AND SIDEWALKS (PERMIT SYSTEM).

Under this appropriation, one-half the cost of the improvement is borne by the property benefited.

Of the total appropriation, $110,000 was allotted to the surface department for the improvement and repair of alleys and sidewalks. In addition there became available during the year about $15,000 more, which was paid on work completed during the year. The following table gives a summary of the work done:

		Regular.	Compulsory.	Total.
Asphalt block	square yards	159	7,251	7,410
Granite block	do		359	359
Vitrified brick	do	242	31,627	31,869
Cobble	do	130	282	412
Curb set	linear feet	1,937	739	2,676
Curb reset	do	463	1,738	2,201
Flag laid	do		82	82
Granolithic walk	square yards	5,448	1,197	6,645
Asphalt-tile walk	do	284	1,018	1,302
Brick walk	do	5,427	24,051	29,478
Grading	cubic yards	1,193	42,851	44,044

The entire appropriation could not be expended on account of defects discovered in the law governing compulsory work. No compulsory work was done after March 1, 1894.

New sidewalks are paved with granolithic mixture, asphalt tile, or ordinary paving brick, and alleys with asphalt block, or vitrified paving brick.

The average cost of these improvements is as follows: Granolithic walk, $1.44 per square yard; asphalt-tile walk, $1.50 per square yard; paving-brick walks, 70 cents per square yard; asphalt block-pavement, $2 per square yard; and vitrified-brick pavement, $1.70 per square yard.

A detailed statement showing the localities in which this work was done will be found in the report of the superintendent of streets, Mr. H. N. Moss.

REPAIRS TO CONCRETE PAVEMENTS.

The term "concrete pavements" is applied to all the smooth pavements of the city, whether coal-tar distillate, asphalt, or asphalt block. On July 1, 1893, the total area of these pavements was 2,478,286 square yards.

The age of these pavements and the cost of repairs are given in the following tables:

Area of concrete pavements.

Calendar year.	Coal tar	Asphalt.	Asphalt block.	Total.	Calendar year.	Coal tar.	Asphalt.	Asphalt block.	Total.
	Sq. yds.	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*		*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*
1871	17,017			17,017	1884		79,865	9,867	89,732
1872	163,991			163,991	1885		32,497	8,934	41,431
1873	279,578	4,540		284,118	1886	6,055	6,041	38,140	50,236
1874	29,614	7,188		36,802	1887	112,203	15,993	37,957	166,153
1875	179,658	7,203		186,861	1888	10,100	42,290	7,834	60,224
1876	14,755	58,904		73,659	1889	13,222	109,072	53,508	175,802
1877	84,319	26,436		110,755	1890		115,232	25,229	140,461
1878	676	18,547	1,093	20,316	1891		147,990	51,164	199,004
1879	12,840	118,206	3,214	134,260	1892		55,270	10,358	65,628
1880		84,905	3,214	88,119	1893		52,230	16,607	68,837
1881		85,757	1,846	87,603	1894		32,815	8,738	41,553
1882		91,029	4,937	95,966					
1883		109,121	14,130	123,251	Total.	924,028	1,301,041	296,770	2,521,839

To the above must be added 82,177 square yards of asphalt laid by private parties, of which the office has no accurate record.

Of the coal-tar pavement there are now remaining only 547,263 square yards, the old pavements having been resurfaced with sheet asphalt.

Cost of maintaining concrete pavements.

Year.	Resurfacing.			Repairs.			Resurfacing and repairs.		
	Square yards.	Cost.	Cost per square yard.	Square yards not under guarantee.	Cost.	Cost per square yard.	Square yards.	Cost.	Cost per square yard.
1879	17,864	$29,691	$1.66						
1880	53,436	59,187	1.11						
1881	20,451	31,300	1.53						
1882	31,172	45,742	1.47						
1883	19,445	29,682	1.52						
1884	19,427	31,556	1.62	812,070	$12,043	$0.015	831,497	$43,599	$0.052
1885	15,991	27,208	1.70	917,255	22,000	.024	933,246	49,208	.052
1886	18,354	29,566	1.60	1,009,005	18,168	.018	1,027,359	47,734	.046
1887	24,839	35,484	1.43	1,107,722	29,502	.027	1,132,561	64,986	.057
1888	29,260	34,424	1.17	1,203,569	45,747	.039	1,232,829	80,171	.063
1889	44,972	55,587	1.24	1,315,561	35,802	.027	1,360,533	91,389	.067
1890	97,846	166,440	1.64	1,357,609	43,392	.032	1,455,455	209,832	.144
1891	49,976	69,411	1.40	1,343,535	46,445	.034	1,393,511	115,856	.083
1892	51,583	79,493	1.54	1,396,386	62,460	.044	1,447,969	141,959	.098
1893	65,270	97,729	1.50	1,614,534	45,825	.028	1,699,804	143,551	.085
1894	60,699	92,493	1.52	1,774,221	47,724	.027	1,834,920	140,218	.076
Average cost			1.48			.029			.075

CURRENT REPAIRS TO STREETS, AVENUES, AND ALLEYS.

This appropriation provides for the repairs of all roadway pavements other than those paved with asphalt or coal tar, all alley pavements not relaid under the permit system, sidewalks around public reservations, all repairs made necessary by the growth of trees, and all cuts made by the sewer department. During the fiscal year the following work was done under this appropriation:

Sheet asphalt	cubic yards	31
Granite block and trap	square yards	9,802
Vitrified brick	do	2,681
Cobble	do	24,382
Asphalt tile	do	260
Paving brick	do	5,856
Curb set	linear feet	358

Curb reset	linear feet	5,448
Flag laid	do	7,904
Flag relaid	do	8,854
Asphalt block paved	square yards	523
Asphalt block repaved	do	1,954
Granolithic sidewalk paved	do	141
Asphalt pavement removed	do	1,973
Terra-cotta pipe laid	linear feet	156
Macadam roadway	cubic yards	143
Plank walk laid	linear feet	130
Hydraulic base laid	do	140
Grading	do	4,861

The regulations adopted by the Commissioners require that all cuts in improved streets made by plumbers or others shall be repaired by the superintendent of streets, and that no permits shall be granted until a sufficient deposit has been made to cover the cost of repairs.

Under this regulation the following work was done during the fiscal year:

Plumbers' cuts—	Square yards.
428 cuts in sheet asphalt	1,427.50
211 cuts in granite block	915.27
146 cuts in asphalt block	561.48
329 cuts in cobble	1,999.71
67 cuts in vitrified brick	192.16
68 cuts in macadam	276.78
Water department, 238 cuts	3,406.61
Sewer department, 226 cuts	13,710.62
Surface department (repairs over sewer cuts), 174 cuts	14,217.63
Washington Gaslight Company, cuts for mains	4,142.16
Chesapeake and Potomac Telephone Company, cuts for underground system	77.74
United States Electric Lighting Company, cuts for underground system	288.52

With over 3,500,000 yards of improved roadway, the systematic regulation and repair of cuts is a matter of great importance.

A detailed statement of work under the appropriation for current repairs will be found in the report of the superintendent of streets.

REPAIRS TO COUNTY ROADS.

An itemized list of expenditures during the fiscal year may be found in the report of the superintendent of county roads, Mr. George N. Beale.

The work consisted in making general repairs on all the county roads and suburban streets in the District, viz, macadamizing and graveling, repairing washouts, cleaning gutters, repairing culverts, sprinkling, etc.

The opening of new streets in the suburbs has diverted a large proportion of this appropriation from the ordinary county roads, which are the main thoroughfares from the country around the District to the Capital. The mileage of these streets and roads, as now recorded, is 300 miles, divided equally between county roads and suburban streets.

In view of the fact that very few of the suburban streets are paved, an increase in the appropriation is required if the streets are to be kept in a passable condition.

CARE OF BRIDGES.

The total number of bridges in the District under the supervision of the Commissioners is 65. Their aggregate length is about $1\frac{3}{4}$ miles.

The principal work of the year was the rebuilding of the P street *bridge over Rock Creek*, at a total cost of $11,510, which was borne

entirely by the Metropolitan Street Railway Company. The plans were made with a view of replacing the present wooden floor with an asphalt floor whenever Congress sees fit to add this improvement, and also to widen the bridge from its present width of 36 to 50 feet.

Under the regular appropriation the Aqueduct bridge over the Potomac river was refloored at a total cost of $4,832.70. In addition to this amount there was expended $1,183.70 in temporarily strengthening pier No. 4, which had been undermined and reported as in a dangerous condition; $1,151.44 was expended on the Navy-Yard bridge in repairing the floor and the mechanism for operating the draw; $1,603.47 was expended in the purchase of the material for a new steel bridge at N street over the James Creek Canal. This bridge will be erected during the present fiscal year.

The remainder of the appropriation was expended in making the necessary repairs to various bridges throughout the District, and replacing small wooden bridges with masonry culverts.

The details as to the work and expenditures during the fiscal year will be found in the report of the engineer of bridges, Mr. Conway B. Hunt.

There are several new bridges needed in the District, notably at Massachusetts avenue, over Rock Creek; over the Eastern Branch; and at K street, over Rock Creek. As they will probably be provided for by special legislation, no estimate for their construction has been submitted in this report.

SURVEYS ON ACCOUNT OF SUBDIVISIONS OF LAND.

This work has been under the charge of Mr. W. P. Richards, assistant engineer, whose report is given in the appendix.

During the fiscal year the following subdivisions have been put on record: West Takoma, Ingleside, Cleveland Heights, Scheutzen Park, Connecticut Avenue Heights, part of Youngsboro, American University Heights, and East Deanwood. The total areas of the subdivisions thus put on record amounted to 268.9 acres, of which about 40 per cent were public streets.

PARKING COMMISSION.

The work of the parking commission is given in full in their report.

Attention has been repeatedly called to the fact that there has been no increase in the appropriation for this work during the last ten years, although the area covered by trees has largely increased. The work has now reached a state where further planting of trees is almost prohibited by lack of appropriation, and if it is intended to plant trees in the suburbs there must be an increase in the appropriation.

If there is one feature of the national capital which appeals to the admiration of its visitors, it is the magnificent trees which line its streets and avenues and add so much to the beauty, comfort, and healthfulness of the city during the long summer months. Too much credit can not be given to the parking commission, which has superintended the planting of these trees and watched over their growth, and liberal appropriations should be made for the continuance of this work. At the present time there are hundreds of trees in the District nursery ready for planting which must be thrown away because of lack of funds for transplanting; there are also many trees being destroyed by horses which could be saved by a small expenditure for wire protection.

It has been impossible thus far to improve any of the District parks; an increase of the appropriation should also be made for this purpose. In this connection I would recommend the abandonment of the circles at the intersection of Sixteenth and U streets and Connecticut and Florida avenues; these circles are not ornamental and can hardly be made so.

INSPECTOR OF ASPHALT AND CEMENTS.

During the fiscal year Mr. Clifford Richardson, who was for several years inspector of asphalt and cements, resigned his position to open an office in this city as consulting chemist.

During his connection with the District he suggested many improvements in the methods of testing and mixing both cement and asphalt mixtures, and was of great service to this department. He was succeeded by Mr. A. W. Dow, who has had about seven years of practical experience in asphalt paving and comes fully equipped for his important position. His first report is herewith transmitted.

A slight change has recently been made in the hydraulic base of cement pavements, allowing the use of gravel and broken stone in equal proportions instead of stone alone. It is thought the change will decrease its cost without impairing its strength.

At the request of several city engineers, I have included in this report certain reports upon tests of Bermudez asphalt.

STREET AND STEAM RAILWAYS.

The following table shows the street railways in actual operation November 1, 1894:

Name.	Mileage operated.				Motive power.
	Tracks owned by company.		Tracks owned by other companies.		
	Double.	Single.	Double.	Single.	
Washington and Georgetown	10.26	0.55			Cable.
Metropolitan	7.12	2.00			Horse.
Columbia	2.86				Do.
Eckington and Soldiers' Home	7.13	1.57	0.89	0.23	Horse and electric.
Belt Line	5.90	1.22	.36		Horse.
Rock Creek	5.37		.11		Electric.
Brightwood	4.60	1.90			Do.
Tenallytown	4.30				Do.
Anacostia and Potomac	5.42	.23	1.27		Horse.

The Columbia Road is at present engaged in changing its horse railway into a cable road, and the Metropolitan is making plans to substitute for its horse, electric power with underground wires.

The Eckington and Soldiers' Home Railroad has practically completed the extensions granted by Congress two years ago, and is operating its extensions as horse roads.

The Columbia Suburban forfeited its charter by failure to complete the road within the specified time; the Great Falls and Maryland and Washington saved their charters by getting extensions of the same, but no work has yet been done by either of the companies.

At the last session of Congress, the Washington and Arlington was allowed to enter the District and construct a road as far north as *Pennsylvania avenue.*

I would again recommend restricting the use of cobblestone in paved streets; their use should at least be abandoned in street intersections.

The situation of the steam railway problem still remains unchanged.

ROCK CREEK PARK.

I would invite attention to the necessity of preparing plans for the improvement of this park, and would suggest that the services of some eminent landscape engineer be procured for this purpose. Provision should also be made for the proper care of the park by watchmen; in the last appropriation act no provision was made for this purpose.

OVERHEAD WIRES AND CONDUITS.

As it is not probable that overhead wires will be abandoned for some time, I would suggest that legislation be sought to correct some of the defects of the overhead system.

The streets and alleys are now occupied by the poles of the Western Union and Postal Telegraph companies, the Chesapeake and Potomac Telephone Company, the District Messenger Service, United States Electric Lighting Company, and the United States and District of Columbia wires. In most cases each corporation has its own poles.

There does not seem to be any greater necessity for each of these corporations maintaining a separate line of poles than for each street railway having a separate track upon streets occupied by two or more companies. It the police powers of the commissioners were extended so as to give them control over the maintenance and erection of all poles, and the companies were compelled to unite their lines where possible, much of the complaint against the obstruction of streets and alleys by poles could be avoided.

In the center of the city, upon such streets as G, F, Pennsylvania avenue between Seventh and Fifteenth streets, and the intersecting streets, the business must warrant the companies putting all main lines underground, and the companies should be compelled to put the wires in conduits; while in the unimproved or sparsely built-up sections, I believe overhead wires should be allowed, with poles in the alleys, if possible. The law, as it now stands, allows the companies to maintain their overhead wires in the center of the city because they were there in 1888, but forbids their putting up lines in the sections where no lines were necessary in 1888, and where the business would hardly warrant the construction of conduits.

There were practically no extensions made to any of the systems of underground conduits during the fiscal year.

Respectfully submitted.

G. J. FIEBEGER,
Captain, Corps of Engineers, U. S. A.

Capt. CHARLES F. POWELL,
Engineer Commissioner, District of Columbia.

Schedule of proposed work on streets, 1895–'96.

NORTHWEST.

Street.	From—	To—	Kind of improvement.	Estimated cost.	Total.
T	Fourteenth	New Hampshire avenue	Pave	$3,000	.....
Oregon avenue	New Hampshire avenue.	Eighteenth	do	7,500	$10,500
H	North Capitol	First	Widen and pave.	12,000	22,500
Florida avenue	Q	R	Pave	10,000	32,500
Twenty-second	P	Massachusetts avenue	do	5,500	38,000
Florida avenue	Intersection Connecticut avenue.	S and Twenty-first	do	5,000	43,000
Virginia avenue	G	E	do	11,000	54,000
First	O	P	do	4,000	58,000
W	Twelfth	Thirteenth	do	4,500	62,500
Florida avenue	First	North Capitol	do	11,000	73,500
T	Seventh	Ninth	do	5,000	78,500
Riggs	New Hampshire avenue.	Eighteenth	do	4,000	82,500
U	Sixteenth	Eighteenth (west side)	do	13,500	96,000
I	Twenty-third	Twenty-sixth	do	11,000	107,000
C	Ninth	Thirteen and one-half	do	11,000	118,000
Twenty-fifth	H	K	do	9,000	127,000
T	Seventh	Florida avenue	do	5,000	132,000
Rhode Island avenue.	New Jersey avenue	do	do	5,000	137,000
Ohio avenue	Fourteenth	Fifteenth	do	6,000	143,000
D	do	do	do	4,000	147,000
K	First	North Capitol	do	9,000	156,000
Twenty-fifth	M	N	do	7,000	163,000
Twenty-second	F	Virginia avenue	do	3,000	166,000
Lawrence	Eighteenth	Nineteenth	do	4,000	170,000
Cedar	do	do	do	4,000	174,000
O	New Jersey avenue	First	do	9,000	183,000
Third	P	Q	do	5,500	188,500
Twenty-fourth	M	Pennsylvania avenue	do	6,000	194,500
Twenty-third	H	I	do	4,000	198,500
H	Twenty-second	Twenty-third	do	4,000	202,500
Vermont avenue	T	U	do	8,000	210,500
Florida avenue	R	S	do	5,000	215,500
T	Seventh	Florida avenue	do	5,000	220,500
Tenth	U	W	do	7,500	228,000

SOUTHWEST.

Third	F	H	Pave	$5,000	.....
Delaware avenue	G	K	Grade and macadamize.	10,000	$15,000
Thirteen-and-a-half	B	D	Pave	8,000	23,000
D	Seventh	Ninth	do	8,000	31,000
F	do	do	do	12,000	43,000
I	Third	Sixth	do	12,000	55,000
Third	H	I	do	5,000	60,000
Six-and-a-half	D	E	do	5,000	65,000
Virginia avenue (north side).	South Capitol	Delaware avenue	do	8,000	73,000
N	Four-and-a-half	Sixth	do	5,000	78,000

NORTHEAST.

Massachusetts avenue.	Second	Fourth	Pave	$3,000	.....
Eleventh	Maryland avenue	Florida avenue	Grade and regulate.	10,000	$13,000
Massachusetts avenue.	Eighth	Eleventh	Pave	17,000	30,000
Twelfth	East Capitol	Maryland avenue	Grade and regulate.	12,000	42,000
Eleventh	do	Massachusetts avenue	Pave	2,500	44,500
Thirteenth	do	Emerson	Grade and regulate.	10,000	54,500
M	Second	Florida avenue	Pave	10,000	64,500
Florida avenue	Ninth	M	Grade and macadamize	12,000	76,500
B	Eighth	Ninth	Pave	3,500	80,000

Schedule of proposed work on streets, 1895–'96.

NORTHEAST—Continued.

Street.	From—	To—	Kind of improvement.	Estimated cost.	Total.
D	Maryland avenue	Ninth	Pave	$5,500	$85,500
F	Third	Seventh	do	13,000	98,500
L	North Capitol	Fourth	Grade and regulate.	10,000	108,500
Tenth	East Capitol	C	Pave	8,000	116,500
Fourth	K	L	do	4,000	120,500
L	Fourth	Fifth	do	4,000	124,500
Florida avenue	New York avenue	Brentwood road	Grade and regulate.	5,000	129,500
Fifteenth	E	Northward	do	2,500	132,000

SOUTHEAST.

E	South Capitol	Third	Pave	$20,000	
Tenth	Pennsylvania avenue	I	do	15,000	$35,000
I	Eighth	Eleventh	do	10,000	45,000
South Carolina avenue.	Seventh	Ninth	do	4,000	49,000
C	Eleventh	Twelfth	do	4,000	53,000
Fourteenth	G	E	Grade and regulate.	1,500	54,500
Kentucky avenue	Lincoln Park	B	do	3,000	57,500
Thirteenth	East Capitol	D	do	8,000	65,500
L	Fourth	Eighth	do	4,500	70,000
E	Thirteenth	Fourteenth	Pave	8,000	78,000
Fourth	C	Virginia avenue	do	12,000	90,000
E	Third	Sixth	do	10,000	100,000
South Capitol	H	K	do	10,000	110,000
South Carolina avenue.	Ninth	Tenth	do	4,000	114,000

GEORGETOWN.

Valley	U	P	Pave	$2,000	
U	Thirty-second	Thirty-first	do	9,000	$11,000
M	Thirty-first	Thirty-second	do	7,000	18,000
Twenty-seventh	M	P	Grade and regulate.	9,000	27,000
Olive	Twenty-eighth	Thirtieth	Pave	6,000	33,000
N	Twenty-seventh	Twenty-eighth	do	5,000	38,000
Dumbarton	do	do	do	5,000	43,000
Thirtieth	M	Chesapeake and Ohio Canal.	do	2,000	45,000
M	Thirty-second	Westward	do	3,000	48,000

CONSTRUCTION OF COUNTY ROADS, 1895–'96.

For construction of county roads and suburban streets the following sums, to be expended by contract or otherwise, as the Commissioners of the District of Columbia may determine, namely:

For grading and regulating Columbia Road, Sixteenth street Northwest extended, Prospect street, Crescent street, Superior street, Erie street, Central street, Meridian and Ontario avenues, Meridian Hill, eight thousand dollars.

For paving Connecticut avenue and Columbia road, between Florida avenue and Wyoming street, twelve thousand dollars.

For grading Fourth street northeast extended, one thousand dollars.

For grading and graveling T street, from Lincoln avenue to Second street northeast, five thousand dollars.

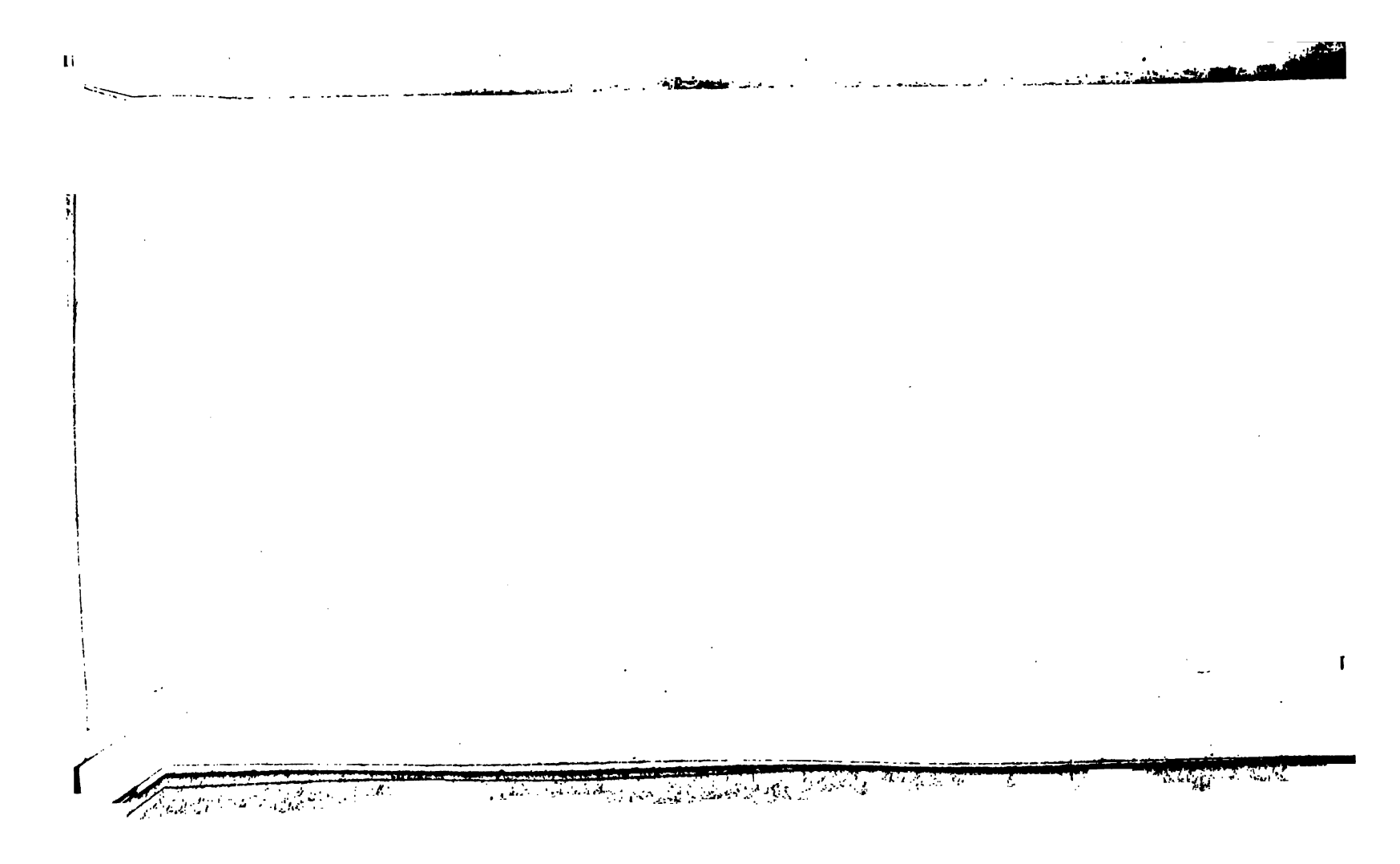
For grading and regulating Sherman avenue, including widening opposite Garfield Hospital, removing buildings, terracing banks and replacing fences, five thousand dollars: *Provided*, That the authorities in charge of Garfield Hospital dedicate to the District of Columbia the ground for widening Sherman avenue on the side of the hospital, in accordance with plats on file with the Commissioners of the District of Columbia.

For *grading and regulating Kenesaw* avenue, from Fifteenth street to Zoological *Park, twelve thousand dollars.*

For paving Harrison street, Anacostia, Monroe eastward, five thousand dollars.
For paving First street extended, S to W streets, eighteen thousand dollars.
For paving Spruce street, Le Droit Park, from Larch street to Harewood avenue, eight thousand dollars.
For grading Massachusetts avenue extended, ten thousand dollars.
For paving Brightwood avenue, Steuben street northward, five thousand dollars.
For grading and graveling Providence, Lansing, Hartford, and Tenth streets, Brookland, nine thousand dollars.
For grading Nebraska avenue, five thousand dollars.
For grading and graveling Yale and Bismarck streets, Seventh to Thirteenth streets, six thousand dollars.
For paving R street extended, Florida avenue westward, four thousand dollars.
For grading and regulating Pennsylvania avenue extended, and Branch avenue, nine thousand dollars.
For grading and graveling Princeton street, Seventh to Thirteenth streets, six thousand dollars.
For grading Illinois avenue, five thousand dollars.
For grading and regulating Spring street, Anacostia, one thousand dollars.
For grading Michigan avenue, five thousand dollars.
For paving Harewood avenue, Maple to Spruce streets, three thousand dollars.

OPENING STREETS.

For grading unimproved streets, at a cost not to exceed ten cents per cubic yard, five thousand dollars.



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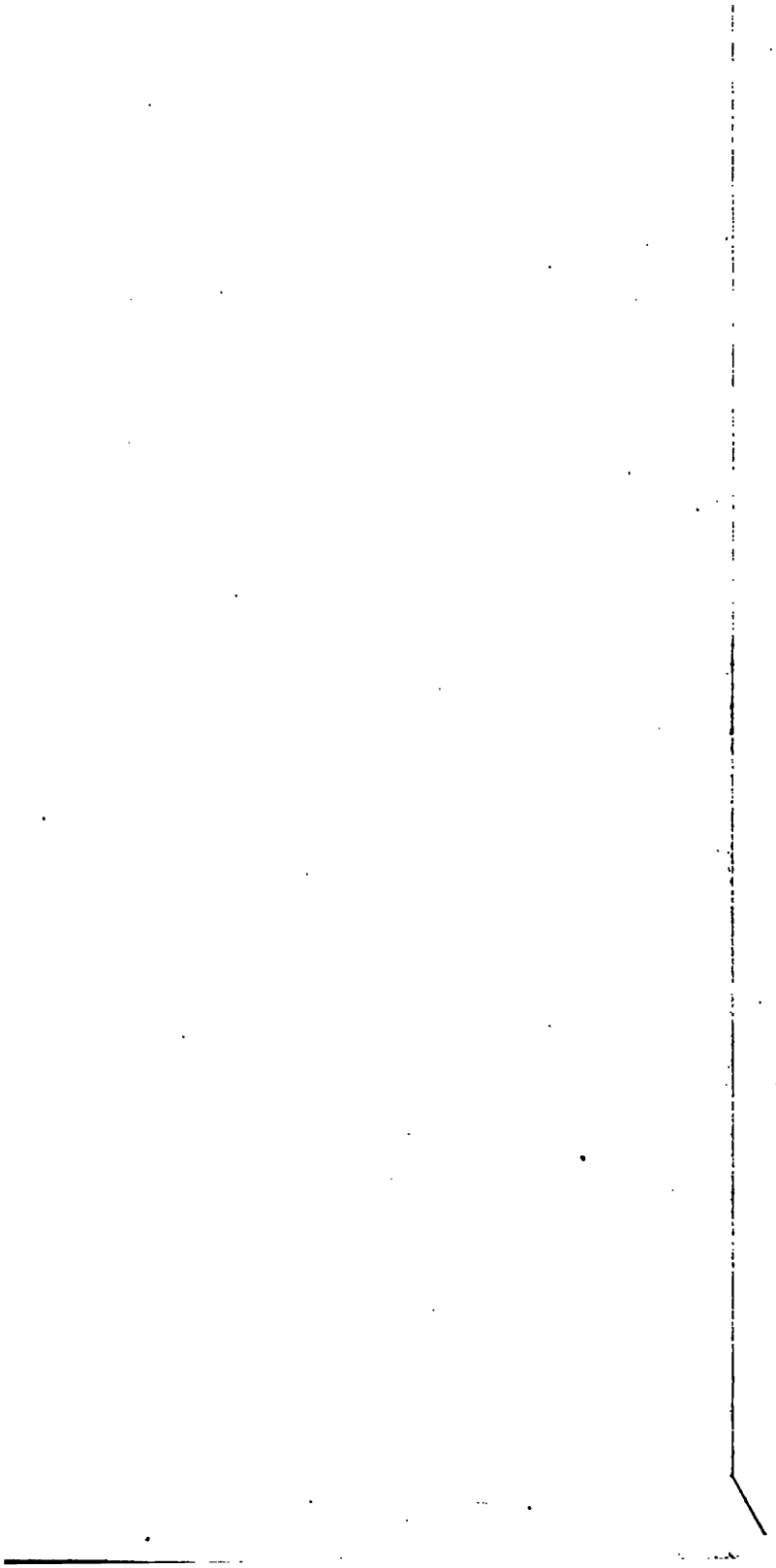

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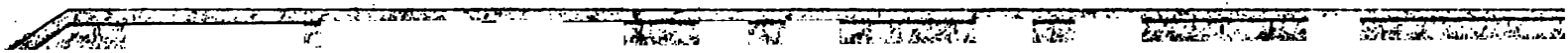


VEST.

Street.	From—	at et.	Circular curb reset.	Straig curb s
		r	*Linear feet.*	*Linear feet*
U	Tenth	45	106.45	3,00
F	Twenty-second	33		
S	New Hampshire ave		412.35	2,32
S	Florida avenue	57		9
Missouri avenue	Four-and-a-half	07		5
M	North Capitol	35		
F	Virginia avenue	84		9
D	New Jersey avenue	85		
South Capitol	E	60	161.30	1,03
K	Canal	20		85
E	Twelfth	11		25
Eighth	B	99		3
Fifth	C	83		19
A	Seventh	68		6
Fifteenth	East Capitol	streets and avenues.		
Do	do	Permit work.		

EAST.

M	North Capitol	71		13
Second	C	41		20
North Capitol	New York avenue	18		6
Fifteenth	East Capitol			

TOWN.

Road	Thirty-second	90		49
Twenty-eighth	M	61		2,03
Prospect	Thirty-sixth			

BAN.

Brightwood avenue				1,13
Connecticut avenue extended.	Columbia road			
Jefferson street, Anacostia				
Champlain avenue				3,90
Sixteenth street extended	Florida avenue.			88
Massachusetts avenue extended.				

ver $10,000 assessed a

Face pa

REPORT OF THE COMPUTING ENGINEER.

WASHINGTON, *August 1, 1894.*

have the honor to submit the following as the operations of
for the year ending June 30, 1894:

A gives a detailed statement of the cost of paving and improv-
ways in the city and in the county under the appropriations
ovements and repairs" and "construction of county roads."

B gives a detailed statement of the expenditures under the
tion for "repairs to concrete pavements."

C gives a detailed statement of work done for railway com-

s also appended a list of all employés paid out of appropria-
the different improvements and the amount paid each.

tion to the above special work, grades were furnished the street
builders, and wherever required by the other departments of
ict service.

tfully submitted.

GEO. H. BAILEY,
Computing Engineer.

IGINEER COMMISSIONER
rough Capt. G. J. Fiebeger.)

A——7

TABLE B.—*Repairs to concrete pavements, 1894.*

Street.	From.	To.	Contractor.	Year laid.	Cubic yards.	Cost per cubic yard.	Square yards.	Cost per square yard.	Contract work.	Total cost.
Fourteenth northwest.	H	Thomas Circle	H. L. Cranford	1879			3,770.72	$1.03	$6,211.21	
Vermont avenue northwest.	K	L	do	1872			1,110.65	1.03	1,636.34	
N northwest, at intersection of Vermont avenue.			do	1880			525.31	1.03	807.81	
Fifteenth northwest	B	E	do	1883			5,251.71	1.03	7,642.91	
Pennsylvania avenue northwest.	Washington Circle	Twenty-sixth	do	1877			4,411.57	1.03	6,116.86	
Do	Eighteenth	Nineteenth	do	1875			2,361.42	1.03	3,316.47	
Twenty-second northwest.	G	I	do	1873			3,118.95	1.03	4,210.15	
Twentieth northwest	K	L	do	1873			1,399.82	1.03	1,989.86	
Seventeenth northwest	K and M	Rhode Island avenue and P.	do	1873–75			8,464.72	1.03	11,831.84	
Twelfth northwest	Massachusetts avenue	G	do	1875			7,868.54	1.03	11,027.34	
I northwest	Sixteenth	Seventeenth	do	1873			4,791.63	1.03	7,337.30	
K northwest	Third	Fourth	do	1874			1,185.71	1.03	1,908.74	
S northwest	Fourteenth	Fifteenth	do	1873			2,486.74	1.03	3,765.69	
B northeast	First	Second	do	1874			3,335.05	1.03	5,475.64	
Seventeenth northwest	Pennsylvania avenue	H	do	1873			721.17	1.03	742.81	
Fourteenth northwest	C	D	do	1887			1,720.20	1.03	4,116.27	
Seventeenth northwest	M	Rhode Island avenue	do	1873			850.03	1.03	1,136.82	
R northwest	Seventh	Ninth	do	1889			381.79	1.03	393.24	
N northwest	Connecticut avenue	New Hampshire avenue	do	1873			2,780.79	1.03	4,601.76	
K northwest	Fourth	Fifth	do	1874			2,989.07	1.03	5,418.97	
G northwest	do	do	do	1872			1,172.29	1.03	2,805.30	
										$92,493.33
Various streets					2,079.6919	$17.50				*47,724.35
Repairs to tools, etc										31.75
Inspection										6,531.76
Material										3,218.79
										149,999.98

*Minor repairs; includes base, binder, cutting out, etc.

TABLE C.—*Work done at cost of railroad companies, 1894.*

Company.	Locality.	Cubic yards.	Square yards.	Total.
Anacostia and Potomac River R. R. Co.	Second and C and Second and Canal streets.	0.26	.....	$6.42
	Eighth and E streets SW	.12	.....	2.89
	Eighth and G streets SE	.17	.....	4.19
	Canal and C streets SW	.22	.....	4.64
	Canal and D streets SW	.55	.....	9.62
	Second and C streets	.05	.....	1.16
	Four-and-a-half street and Missouri avenue.	.27	.....	6.67
	Total	.....	.....	35.59
Columbia R. R. Co	Massachusetts avenue, Fourth to Sixth streets.	.56	.....	13.83
	Massachusetts avenue, Sixth to Seventh streets.	.31	.....	7.65
	Eleventh street and New York avenue.	.18	.....	.25
	K, Seventh to Eighth streets	.02	.....	.49
	Massachusetts avenue, Fourth to Seventh streets.	.20	.....	19.76
	Twelfth street and New York avenue.	.51	.....	12.60
	Total	.....	.....	54.58
Rock Creek R. R. Co	U, between Tenth and Fourteenth streets.	.....	322.55	815.25
	N, between Tenth and Fourteenth streets.	.....	416.68	1,035.51
	Connecticut avenue extended.	.....	8,635.94	9,700.84
	Total	.....	.....	11,551.60
Brightwood R. R. Co	Brightwood avenue	.....	263.24	829.76
	do	.....	67.33	178.75
	do	.....	.....	231.24
	Total	.....	.....	1,239.75
Metropolitan R. R. Co	F, Twelfth to Thirteenth streets	0.65	0.29	22.96
	F, Fifth to Seventh streets	1.01	.....	21.42
	B and First streets NE	.....	1.67	1.72
	First, between East Capitol and B streets NE.	.03	.....	.75
	B street, between Delaware avenue and First street.	.01	.....	.24
	Ninth street and Pennsylvania avenue.	.10	.....	2.40
	Ninth street, between Massachusetts avenue and N street.	323	.....	77.40
	First NE., between B and East Capitol streets.	.16	.....	3.38
	P, between Twenty-second and Bridge streets.	3.11	.....	91.65
	B, between First and Second streets NE.	.....	1.67	1.72
	Twenty-ninth, between Dumbarton and P streets.	.....	13.24	18.75
	I, between Sixteenth and Seventeenth streets.	.....	2.73	2.81
	H street, between Vermont avenue and Fifteenth street.	.....	.09	2.22
	East Capitol, between First and Ninth streets.	.....	.74	20.19
	Thirty-first and Dumbarton streets	.....	25.06	34.83
	Ninth street, between Pennsylvania avenue and H street.	.95	.....	23.39
	Ninth, between G and H streets	.52	.....	12.77
	Ninth street, between R street and Florida avenue.	.10	.....	2.47
	Twenty-eighth, between Dumbarton and P streets.	.....	260.76	507.69
	Missouri avenue, between Four-and-a-half and Sixth streets.	.....	301.02	707.19
	Total	.....	.....	1,555.95
Washington and Georgetown R. R. Co.	Pennsylvania avenue, between Eighteenth and Nineteenth streets.	.....	142.89	204.35
	Pennsylvania avenue west of circle to Twenty-sixth street.	.....	266.07	377.05
	First street, between Pennsylvania and Maryland avenues.	.01	.....	.17

TABLE C.—*Work done at cost of railroad companies, 1894*—Continued.

Company.	Locality.	Cubic yards.	Square yards.	Total.
Washington and Georgetown R. R. Co.—Continued.	Eighth street and Pennsylvania avenue SE.	.17	.....	$0.30
	Total	.....	.....	581.87
Georgetown and Tennallytown R. R. Co.	High street	.....	1,821.88	5,687.65
Belt Line R. R. Co	Eleventh street, G street to Massachusetts avenue.	0.41	.....	7.17
	Eleventh street and New York avenue.	.02	.....	.494
	Fourteenth street and Ohio avenue	.02	.....	.494
	Eleventh and M streets	.03	.....	.664
	Massachusetts avenue and Eleventh street.	.18	.....	4.37
	Maryland avenue and First street	.03	.....	.74
	Fourteenth, between C and D streets NW.	.....	110.39	264.20
	O street, between New Jersey avenue and Eleventh street NW.	.58	.....	12.24
	Fourteenth street, between Pennsylvania avenue and B street.	.52	.....	12.77
	P, between Fifth and Seventh streets	.13	.....	2.47
	Fourth street and New Jersey avenue.	.31	.....	6.27
	Fourteenth street, between Pennsylvania avenue and B street.	.51	.....	12.60
	Fourth, between G and I streets	.48	.....	8.20
	Fourteenth and B streets NW	.17	.....	4.12
	B, between Twelfth and Fourteenth streets SW.	1.51	.....	31.90
	O, between Fourth and Eleventh streets NW.	.25	.....	6.10
	Total	.....	.....	374.802
Eckington and Soldiers' Home R. R. Co.	Fifth street, G street to New York avenue.	1.46	.....	30.73
	G, Fifth to Ninth streets	.42	.....	10.30
	G, Ninth to Eleventh streets	1.27	.....	31.29
	Fifth street, G to H streets	.06	.....	1.34
	New York avenue, First to Seventh streets.	.54	.....	15.10
	North Capital street and New York avenue.	4.54	.....	112.07
	G, between Fifth and Seventh streets.	1.68	.....	41.49
	G street, between Twelfth and Thirteenth streets.	.81	.....	17.05
	K and Fourth streets NW	.....	14.87	16.95
	G, between Ninth and Eleventh streets.	3.37	.....	74.67
	Fifth street, between H street and New York avenue.	1.66	.....	33.15
	G, between Seventh and Ninth streets.	.14	.....	3.03
	Total	.....	.....	387.17

SUMMARY.

Anacostia and Potomac River R. R. Co	$35.59
Columbia R. R. Co	54.58
Rock Creek R. R. Co	11,551.60
Brightwood R. R. Co	1,239.75
Metropolitan R. R. Co	1,555.95
Washington and Georgetown R. R. Co	581.87
Georgetown and Tennallytown R. R. Co	5,687.65
Belt Line R. R. Co	374.802
Eckington and Soldiers' Home R. R. Co	387.17
Total	27,668.962

List of inspectors, etc., on surface work, showing appropriations from which paid, for fiscal year ending June 30, 1894.

Name.	Work on streets and avenues.		Constructing county roads.		Permit work.		Repairs to concrete pavements.		Total number days.	Rate per day.	Total amount.
	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.			
C. B. Hunt			131	$842.50					53 78	$150.00 175.00	$842.50
E. S. Greenwell	298	$1,192.00							298	4.00	1,192.00
William Smith	4	8.00			107⅛				4	2.00	8.00
A. M. Schoepf	45	90.00			107⅛	$215.00			163	2.00	†326.00
H. A. Marsden	119	238.00			5	10.00			124	2.00	248.00
George M. Lukesh	39	78.00							39	2.00	78.00
J. A. French	12	30.00							12	2.50	30.00
Arthur Johns			159⅝	319.25	10⅜	20.75			170	2.00	340.00
C. R. Unger	102⅛	410.00					4	$16.00	106⅛	4.00	426.00
F. A. Beuter	89	356.00					13	52.00	102	4.00	408.00
W. H. Calhoun	45½	182.00	1	4.00					46½	4.00	186.00
J. L. Calhoun	50	200.00							52½	4.00	‡210.00
A. M. Bond	66	264.00	23	92.00					89	4.00	356.00
E. E. Morrow	93	372.00	80⅓	322.00					173⅓	4.00	694.00
J. N. Clarkson	23	92.00	4	16.00					27	4.00	108.00
J. N. Quackenbush	93½	374.00							93½	4.00	374.00
George S. Robinson	68½	274.00							68½	4.00	274.00
G. C. Ransdell	9½	38.00							9½	4.00	38.00
J. H. Crawford			144	576.00					144	4.00	576.00
J. R. Emory	1	4.00	19	76.00					20	4.00	80.00
J. W. Beall	2	8.00							2	4.00	8.00
J. A. E. Marony	27	97.50					223½	578.50	46 53 151½	3.50 4.00 2.00	676.00
J. O. Hargrove	26	65.00							26	2.50	65.00
J. W. Beale	162½	649.00			26½	105.00			188½	4.00	754.00
J. M. Jackson	153	225.00			60	90.00			213	*45.00	315.00
I. Roberts	153	267.75			30	52.50			183	1.75	320.25
C. Maynard	138	207.00	69	103.50	46	69.00			253	1.50	379.50
M. Winston	176	270.00			62	90.00	90	135.00	328	*45.60	495.00
R. H. Roberts	90	135.00							90	1.50	135.00
Wm. Ragan	108	162.00							108	1.50	162.00
J. W. Sorrell	2½	3.75							2½	1.50	3.75
M. King	25	37.50							25	1.50	37.50
Thos. Sweeney					28	42.00			28	1.50	42.00
T. Brannan					28	42.00			28	1.50	42.00
Total		6,329.50		2,351.25		736.25		781.50			10,229.50

* Per month.
† Includes $21 charged to excise board.
‡ Includes $10 charged to curbing and paving roadways, 1892.

SUMMARY.

Work on streets and avenues	$6,329.50
Constructing county roads	2,351.25
Permit work	736.25
Repairs to concrete pavement	781.50
Excise board	21.00
Curbing and paving roadways (1892 appropriation)	10.00
Total	10,229.50

REPORT OF SUPERINTENDENT OF STREETS.

WASHINGTON, D. C., *July 30, 1894.*

SIR: I have the honor to submit the following report of the operations of this department for the fiscal year ended June 30, 1893:

The appropriation for current repairs to streets, avenues, and alleys was $40,000, of which amount $39,999.98 was expended; balance, 2 cents. (See statement marked A.)

A.—*Work done under the appropriation for current repairs to streets, avenues, and alleys, July 1, 1893, to June 30, 1894.*

Grading	cubic yards..	4,861
Flag laid	linear feet..	7,904
Flag relaid	do....	8,854
Curb set	do....	358
Curb reset	do....	5,448
Cobble paved	square yards..	24,382
Brick sidewalk paved	do....	994
Brick sidewalk repaved	do....	4,862
Granite block paved	do....	2,573
Granite block repaved	do....	5,949
Vitrified brick paved	do....	1,660
Vitrified brick repaved	do....	1,021
Sheet asphalt	cubic yards..	31
Asphalt tile paved	square yards..	260
Asphalt tile repaved	do....	45
Asphalt block paved	do....	523
Stone terrace wall repaired	linear feet..	735
Asphalt block repaved	square yards..	1,954
Granolithic sidewalk paved	do....	141
Asphalt pavement removed	do....	1,973
Terra-cotta pipe laid	linear feet..	156
Macadam roadway	cubic yards..	143
Trap rock repaved	square yards..	1,280
Plank walk laid	linear feet..	130
Wooden fence constructed	do....	140
Hydraulic base laid	square yards..	281
Material		$8,445.58
Labor		26,122.27
Miscellaneous labor		5,432.13
Total cost		39,999.98

During the year there were 1,106 dangerous holes repaired, aggregating 6,861 square yards, at a total cost of $1,706.26.

The act of Congress approved March 3, 1893, appropriates $165,000 for permit work, $110,000 of which was allotted to the street department. A previous act of Congress provides "that under the permit system the property-owners requesting such improvements shall pay one-half the total cost." The expenditures under such provision were $19,348.50, as shown by statement marked B.

B.—*Regular permit work.*

For whom done.	Grading.	Paving brick.	Cobble.	Curb set.	Curb reset.	Asphalt tile.	Vitrified brick.	Asphalt block.	Cement sidewalk.		Cost.
									McLaughlin.	Drew.	
	Cubic yds.	*Sq. yds.*	*Sq. yds.*	*Lin. feet.*	*Lin. feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	
Thos. Hyde	100	212	50	195							$583.60
M. Losano & Son				50					96		240.14
Ralph W. Lee					7				59		110.03
J. H. Merriweather					28				41		78.20
Do				10					257		478.50
J. R. Rogers									22		39.84
E. J. Hannan						24					37.14
P. V. De Graw *et al*	245			20			114				371.08
A. Lisner				283					610		1,493.84
C. Heurich				125							105.6
E. H. Bond									27		50.1
J. W. Reed					5				18		34.3
J. E. Chapman									183		341.8
Samuel Ross *et al*	308	2,149									1,604.9
Lawrence Sands	33		77	211					130		512.4
Wilkins & Co					7				25		46.1
Hill Johnston					13				27		51.2
Robt. I. Fleming									68		124.8
J. H. Miller									91		168.3
Jos. F. Bradley									77		142.2
C. V. Trott	100	77									103.3
W. Clary									28		51.2
T. F. Schneider					4				30		55.4
H. C. Birge						43					67.9
C. W. Scott									18		32.6
John A. Milburn				45	6				33		123.6
A. Day									17		31.1
H. A. Robbins						28					44.2
Charles S. Durham					16				29		56.4
James E. Miller				197					187		602.0
I. Saks					8				32		59.6
Barnes & Weaver	65	230									193.2
Hornblower & Marshall									50		91.4
A. E. Knorr						21					33.1
Jacob Bool									24		44.4
C. Edmonston				59	4				72		215.9
Mrs. C. A. Stanley				25					29		86.7
P. A. Sheehy									42		79.3
G. E. Gilliland					7				27		50.2
J. G. Meyers				90							67.5
J. F. Oyster				25	4				31		91.7
M. Shea				50					59		176.0
Robert Boyd					40				174		325.1
Hornblower & Marshall									211		390.1
J. W. Nairn				23	7				36		98.3
Pels & Carlisle					5				86		159.5
J. H. Bradley					13				86		159.6
W. A. Gordon, president									41		76.2
Wm. G. Lee					17	36					59.3
A. O. Wright					6	35					55.6
Mary J. Perry				24					31		92.5
Jno. E. Brackett					4				23		43.5
Sarah S. Stone					10				25		46.4
Joe Barnard				24	15				31		93.6
B. H. Warner & Co					9				36		67.4
H. L. Cranford				14							12.5
Hornblower & Marshall				35	13				29		104.2
H. E. Pellew	46	171									159.9
H. L. Cranford						9					11.5
Geo. P. Newton	13	171									110.5
B. Lefere	7	29									22.6
T. G. Nicholai			3								3.431
Owen McCabe					36	88					143.8
Doctor Easton				81					253		585.9
J. W. Green		15									6.7
F. A. Denison & Co		6									6.9
Jno. A. Swope										26	45 1
E. F. Andrews										50	85.8
Barnes & Weaver	20	3		30			17				37.9
W. H. German	48	142									98.6
Do	126							159			371.1
Hornblower & Marshall					30					213	368.7
Helen Fowler				85						142	343.6

B.—*Regular permit work*—Continued.

For whom done.	Grading.	Paving brick.	Cobble.	Curb set.	Curb reset.	Asphalt.	Vitrified brick.	Asphalt block.	Cement sidewalk.		Cost.
									McLaughlin.	Drew.	
	Cubic yds.	*Sq. yds.*	*Sq. yds.*	*Lin. feet.*	*Lin. feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	
Levi Woodbury										121	$205.73
John S. Larcombe				26						32	88.50
Do										30	52.78
E. H. Catlin										63	109.50
Mary A. Lynn										64	107.47
H. P. Waggaman		458									291.60
Matt Trimble				22						48	111.48
Seaton Perry										32	59.47
D. S. Barry										24	41.30
Thos. Graham										24	41.52
W. B. Thompson										27	44.97
J. C. Slater										25	42.06
H. E. Pellew										73	125.04
W. H. Finkle										24	41.52
F. G. Smith				25						117	230.01
Franklin & Co										52	86.45
J. E. Chapman					27					25	46.96
M. A. Mess	76	142		116							237.85
Chas. Jacobson					8					171	288.90
D. E. Kleps										100	168.67
W. K. Mendenhall										71	118.98
J. H. Whittemore					17					312	541.77
Levi Woodbury	6						111				170.40
Geo. E. Hamilton										81	137.98
W. E. Boulter					6					23	39.54
C. C. Willard				40						77	183.25
M. G. McCormick										19	32.20
E. L. Johnson										77	130.40
D. Hannan		70									50.86
Chas. E. West					6					22	37.65
W. L. Bramhall										87	148.30
H. P. Waggaman		1,552									1,000.93
W. A. Kimmel										24	40.92
Geo. Drew & Son					10					22	38.66
E. Piepenbring										18	30.11
J. James										98	169.32
Kate Crowley										24	41.06
C. C. Willard				7						29	60.67
D. D. Stone										14	25.56
Chauncey Hickox										23	39.80
D. D. Stone					42					36	49.00
P. J. Clarke										56	93.80
Harriet Galt					15					50	87.13
Noble D. Larner					18					224	380.59
J. W. Davis										23	38.77
Jno. G. Toupper										23	39.82
Jas. Legenfelter										24	40.36
Total	1,193	5,427	130	1,937	463	284	242	159	3,501	2,940	19,348.50

The act also provides "that the Commissioners of the District of Columbia are authorized, in their discretion, to order such of the above enumerated work as, in their opinion, is necessary for the public health, safety, or comfort, and to pay the cost of such work from said appropriation; one-half the cost of such work so done, including material and labor, shall be charged against and become a lien upon the property abutting upon the line of such improvement," etc.

By order of the Commissioners of the District of Columbia, all compulsory permit work was stopped March 23, 1894. The expenditures in compulsory permit work up to that time amounted to $95,447.31, as shown by statement marked C.

C.—*Compulsory permit.*

No.	Location.	Grading.	Asphalt block.	Asphalt tile.	Paving brick.	Vitrified brick.	Cobble.	Curb set.	Curb reset.	Flag laid.	Cement sidewalk.	Granite block.	Cost.
		Cu. yds.	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Lin. ft.*	*Lin ft.*	*Lin. ft.*	*Sq. yds.*	*Sq. yds.*	
1	Sidewalk, Tenth street NW., from No. 519 to No. 529, inclusive				232				8				$144.47
3	Alley, square 59	148				286		87					530.93
4	Alley, square 470	265				1,393	27						2,697.87
5	Alley, square 497	43				171	24						333.50
6	Alley, square 120	115				150			32				384.04
7	Alley, block 5, Le Droit Park	436				542							985.13
8	Alley, square 816					234							470.68
9	Alley, square 753	1,240				2,943							4,939.81
10	Sidewalk, east side Fifteenth street NW., between F and G								40		119		231.45
12	Alley, square 620 (north half)	506				1,054							1,838.80
13	Sidewalk, west side Brown street, Mount Pleasant	256			258								305.23
14	Alley, square 134	200				1,200							2,137.97
16	Alley, square 24	19,870											3,134.41
19	Alley, square 117	1,576				2,629			24				4,968.83
20	Alley, square 16	1,630				2,147							3,528.53
21	Alley, square 28	1,578				2,775							5,456.31
22	Alley, square 546	162				1,071							2,158.04
23	Alley, square 1027	1,396				3,915							6,039.43
24	Sidewalk, north side F street NW., from Fourteenth to Fifteenth							3	98		776		1,504.07
25	Sidewalk, south side H street NW., from Eighteenth to Nineteenth	32			861				58			7	386.92
27	Alley, square 306	167				434							743.61
28	Sidewalk, west side Fifteenth street NW., from O to P	18		47	330								187.35
29	Alley, square 808	322				537							1,005.32
30	Alley, square 900	140				710			22				1,386.38
31	Alley, square 615	1,431				3,092		30					4,990.50
33	Alley, square 274	2,000				2,000							4,006.49
34	Alley, square 685	95				202		50					346.69
35	Alley, square 153 (north half)	225				635							1,282.43
36	Sidewalk, south side K street NW., from Twelfth to Thirteenth	24			528				124				250.35
37	Driveway, west side Sixth street NW., between New York avenue and L street					16							26.15
38	Alley, square 1	750											314.32
40	Alley, square 182	73	193										427.04
41	Sidewalk, north side E street NE., from North Capitol east to alley	38			116								69.72
45	Sidewalk, west side First street NE., from K to Fenton	14			247								93.87
46	Alley, square 1023	400				1,915		66					3,613.85
47	Sidewalk, east side Twelfth street SE., from D to E	612			382		200	381					1,033.24
51	Sidewalk, north side M street NE., from Twelfth street to Trinidad avenue	400			580			15					516.82

C.—*Compulsory permit*—Continued.

No.	Location.	Grading.	Asphalt block.	Asphalt tile.	Paving brick.	Vitrified brick.	Cobble.	Curb set.	Curb reset.	Flag laid.	Cement sidewalk.	Granite block.	Cost.
53	Sidewalk, east side Twentieth street NW., from I street to Pennsylvania avenue	*Cu. yds.* 8	*Sq. yds.*	*Sq. yds.*	*Sq. yds.* 166	*Sq. yds.*	*Sq. yds.*	*Lin. ft.*	*Lin. ft.*	*Lin. ft.*	*Sq. yds.*	*Sq. yds.*	$106.08
54	Sidewalk, both sides L street NW., from Twelfth to Thirteenth	28			606				518				320.10
55	Sidewalk, front No. 1609 Thirty-second street NW				34								27.32
56	Sidewalk, west side Fourth street from New York avenue to N street NW	33			1,062								459.98
58	Alley, square 156 (north half)	366				826							1,571.28
59	Sidewalk, front No. 646 to No. 650, inclusive, Pennsylvania avenue SE				240								248.93
60	Sidewalk, south side Rhode Island avenue NW., from Seventh to Eighth				316								179.38
62	Sidewalk, west side Trinidad avenue NE., from Florida avenue to M	335			195								260.26
65	Sidewalk, south side Q street NW., between North Capitol and First	20			149								121.04
66	Sidewalk, north side D street NE., from First to Second	209			627								366.69
68	Sidewalk, west side Eighth street NW., from E to F				300								251.38
69	Sidewalk, east side Fifteenth street NW., from Pennsylvania avenue south to first alley							20			302		583.39
70	Sidewalk, both sides Twentieth street NW., from Pennsylvania avenue to G	46			1,646				740				803.89
71	Sidewalk, north side Park street NW., between Fourteenth and Fifteenth	46			116								90.06
72	Sidewalk, east side Sixth street NW., between Missouri avenue and alley opposite B street	8			235								149.98
74	Sidewalk, west side Twenty-ninth street NW., from M to N	38			853				18				361.30
76	Sidewalk, north side Kenyon street, between Thirteenth and Fourteenth, Mount Pleasant	700			706								649.54
77	Sidewalk, both sides A street SE., from Seventh to Ninth	233			1,400								523.85
78	Sidewalk, both sides Tenth street NE., from G to Maryland avenue	218			1,961								797.90
79	Sidewalk, both sides Thirty-second street NW., from M to Chesapeake and Ohio Canal				175								236.65
80	Sidewalk, north side D street NE., from Twelfth to Thirteenth	160			242								215.33
84	Sidewalk, north side East Capitol street NE., from Sixth to Seventh			971									1,592.52
85	Alley, square 516	1,200	2,580										5,213.95
87	Sidewalk, west side Seventh street NW., from Florida avenue to Pomeroy street				350								507.19
95	Sidewalk, both sides Tenth street NW., from Pennsylvania avenue to Louisiana avenue				2,369								960.76

97	Alley, square 157, leading from Seventeenth street	96	253										276.76
98	Sidewalk, east side Twelfth street NE., from Florida avenue to M	68		200		18			40				204.19
110	Sidewalk, south side Bacon street from Fourteenth to Fifteenth, Mount Pleasant	238		418		13			42				413.04
112	Sidewalk, south side L street NE., from Sixth to Seventh	286		614									506.59
115	Sidewalk, both sides Twelfth street NE., from D to Maryland avenue	1,860		1,462									1,510.64
116	Sidewalk, both sides Second street NE., from C to F	160		2,868		750						353	1,098.70
117	Alley, square 653												2,443.65
120	Alley, square 246		2,288					41					4,709.78
144	Sidewalk, south side G street NE., from Pierce school building to Maryland avenue	82		93				46	29				133.60
146	Alley, square 166		1,380										2,965.72
147	Alley, square 90 (west half)		557						27				1,021.57
148	Sidewalk, east side Fifteenth street SE., from Pennsylvania avenue to East Capitol	261		1,119									797.88
	Total	42,851	7,251	1,018	24,051	31,627	282	739	1,738	82	1,197	359	95,447.31

Table marked D gives the amount of work done for parties requesting the construction of driveways and other pieces of work that were needed for their sole benefit and not for the use of the general public. The cost of such work was $4,505.06.

D.—*Whole cost work.*

No.	For whom done.	Grading.	Granite block.	Cobble.	Curb set.	Curb reset.	Asphalt block.	Vitrified tile.	Paving brick.
		Cu. yds.	*Sq. yds.*	*Sq. yds.*	*Lin. ft.*	*Lin. ft.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*
1	Georgetown Gas Co		209	49					
3	Washington Market Co	50	478	12	47	146	150	330	24
4	M. Losano & Son (extra work)								
5	Wilmot Lake		1,044						
6	A. Lisner	32				133			45
7	J. E. Chapman						3		
8	U. S. Electric Light Co		4						
9	Robert I. Fleming								
10	P. F. Glos					10	20		
11	C. C. Smithson					7			
12	Rock Creek R. R. Co								
13	do		85						
15	Wm. M. Galt & Co		6				36		
17	Brightwood R. R. Co	30							
18	A. M. Proctor								5
19	U. S. Government		39						
21	W. T. Galliher & Bro					13			
22	Hornblower & Marshall								
23	Wm. McKinley						20		
24	Brightwood R. R. Co		67						
25	J. S. Addison					8			
26	J. W. Merrill					9			
27	M. G. McCormick								
28	P. Reddington					9			18
30	W. K. Mendenhall								
32	Washington and Georgetown R. R. Co		165						
	Total	112	2,097	61	47	335	229	330	87

No.	For whom done.	Vitrified brick.	Pipe laid.	Sheet asphalt.	Cement sidewalk.		Cost.
					McLaughlin.	Drew.	
		Sq. yds.	*Linear feet.*	*Cubic yds.*	*Sq. yds.*	*Sq. yds.*	
1	Georgetown Gas Co						$192.58
3	Washington Market Co						1,422.21
4	M. Losano & Son (extra work)						6.55
5	Wilmot Lake						994.64
6	A. Lisner			16			851.02
7	J. E. Chapman						3.25
8	U. S. Electric Light Co						2.31
9	Robert I. Fleming				38		66.58
10	P. F. Glos						43.70
11	C. C. Smithson	10					18.42
12	Rock Creek R. R. Co	*35					35.66
13	do						57.72
15	Wm. M. Galt & Co						77.63
17	Brightwood R. R. Co		57				131.11
18	A. M. Proctor						7.22
19	U. S. Government						120.19
21	W. T. Galliher & Bro	16					22.77
22	Hornblower & Marshall					75	120.35
23	Wm. McKinley						7.75
24	Brightwood R. R. Co						178.75
25	J. S. Addison	11					16.17
26	J. W. Merrill	16					23.58
27	M. G. McCormick					5	8.59
28	P. Reddington						15.82
30	W. K. Mendenhall					8	12.07
32	Washington and Georgetown R. R. Co						68.47
	Total	88	57	16	38	88	4,505.06

*District furnished the bricks and railroad company did the work themselves.

Table marked E shows miscellaneous work which was paid for from various appropriations. This work cost $13,208.33.

E.—*Table of miscellaneous work.*

No.	Location.	Appropriation.	Granite block.	Drain pipe.	Grading.	Curb reset.	Curb set.	Cobble.	Vitrified brick.
			Sq. yds.	*Lin. feet.*	*Cubic yds.*	*Lin. feet.*	*Lin. feet.*	*Sq. yds.*	*Sq. yds.*
1	Water cut, P street NW., west from P street bridge.	Pumping expenses and pipe distribution.	589	.....	.....	.....	.....	.....	.....
2	F street NW., between Twenty-fourth and Twenty-fifth.	Work on streets and avenues, northwest section.	.....	174	.....	.....	.....	.....	.....
3	High street from M to C. & O. Canal, Georgetown.	Work on streets and avenues, Georgetown.	65	.....	194	451	143	298	614
4	Tenth street NW., between Q and R.*	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	.....
5	8 street NW., between Fifth and Seventh.	Work on streets and avenues, northwest section.	.....	.....	.....	165	.....	84	.....
6	Seventh street NW., north of Florida avenue.	Current repairs to county roads.	547	.....	.....	84	45	.....	.....
7	Water cut, P street NW., west from P street bridge.	Pumping expenses and pipe distribution.	100	.....	.....	.....	.....	.....	.....
8	Front of Pierce school building, Fourteenth and G streets NE.	Public schools	.....	.....	585	.....	259	.....	.....
9	Northwest corner Nineteenth and S NW	Work on streets and avenues, northwest section.	.....	.....	.....	.....	.....	.....	3
10	Roadway, Brightwood avenue, between Florida avenue and Steuben street.	Brightwood avenue	684	.....	436	.....	296	.....	.....
11	K street SW., between South Capitol and James Creek Canal.	Work on streets and avenues, southwest section	980	.....	647	.....	1,293	24	.....
12	Fifteenth street, A to D SE.	Work on streets and avenues, southeast section.	.....	.....	2,750	.....	.....	.....	.....
13	N street NW., New Hampshire to Connecticut avenue.	Repairs to concrete pavements.	.....	.....	.....	1,892	.....	.....	421
14	Fifteenth street, between C and D NE.	Work on streets and avenues, northeast section.	1,018	.....	.....	.....	.....	.....	.....
15	K street, between Fourth and Fifth NW.	Repairs to concrete pavements.	.....	.....	65	1,507	.....	.....	766
16	Tool shed at Canal street property yard.†	Permit work	.....	.....	.....	.....	.....	.....	.....
	Total		3,983	174	4,677	4,099	2,036	406	1,804

* Work was done by sewer department, and statement of cost furnished this department.
† This work consisted of extending and building tool shed.

E.—*Table of miscellaneous work*—Continued.

No	Location.	Appropriation.	Asphalt block.	Flag laid.	Paving brick.	Asphalt tile.	Hydraulic base.	Vitrified brick.	C
			Sq. yds.	*Lin. feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	
1	Water cut, P street NW., west from P street bridge.	Pumping expenses and pipe distribution.	.....	.....	.....	.....	.....	.....	$
2	F street NW., between Twenty-fourth and Twenty-fifth.	Work on streets and avenues, northwest section.	.....	.....	.....	.....	.....	.....	
4	High street from M to C. & O. Canal, Georgetown.	Work on streets and avenues, Georgetown.	.....	.....	.....	.....	.....	.....	1,
5	Tenth street NW., between Q and R.*	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	1,
6	S street NW., between Fifth and Seventh.	Work on streets and avenues, northwest section.	120	18	.....	.....	.....	.....	
7	Seventh street NW., north of Florida avenue.	Current repairs to county roads.	.....	.....	.....	.....	.....	.....	1,
8	Water cut, P street NW., west from P street bridge.	Pumping expenses and pipe distribution.	.....	.....	.....	.....	.....	.....	
9	Front of Pierce school building, Fourteenth and G streets NE.	Public schools.....	.....	.....	325	.....	.....	.....	
10	Northwest corner Nineteenth and S NW.	Work on streets and avenues, northwest section.	.....	.....	.....	161	.....	.....	
11	Roadway Brightwood avenue, between Florida avenue and Steuben street.	Brightwood avenue...	.....	.....	.....	.....	.....	.....	1,
12	K street SW., between South Capitol and James Creek Canal.	Work on streets and avenues, southwest section.	.....	.....	.....	.....	.....	.....	1,
13	Fifteenth street, A to D SE..	Work on streets and avenues, southeast section.	.....	.....	.....	.....	.....	.....	
14	N street NW., New Hampshire to Connecticut avenue.	Repairs to concrete pavements.	.....	.....	400	48	455	.....	1,
15	Fifteenth street, between C and D NE.	Work on streets and avenues, northeast section.	.....	.....	.....	.....	.....	.....	
16	K street, between Fourth and Fifth NW.	Repairs to concrete pavements.	.....	.....	622	.....	1,731	510	3,
17	Tool shed at Canal street property yard.†	Permit work.....	.....	.....	.....	.....	.....	.....	
	Total.....	.....	120	18	1,347	209	2,186	510	13,

* Work was done by sewer department, and statement of cost furnished by this department

† This work consisted of extending and building tool shed.

Table marked F is a full list of the temporary employés of this department, and shows the appropriations from which they were paid during the year.

F.—*List of temporary employés.*

INSPECTORS.

Name of employé.	Appropriation from which paid.	July.			August.			September.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
R. E. Boiseau	Permit work	6	$3.00	$18.00						
	do	19	4.00	76.00	25	$4.00	$100.00	25	$4.00	$100.00
	Current repairs to streets, etc.									
A. D. Raymond	Plumbers' assessment fund.	24	4.00	96.00	27	4.00	108.00	18	4.00	72.00
C. L. Lanham	Permit work	6 19	2.00 3.00	69.00	27	3.00	81.00	25	3.00	75.00
	Current repairs to streets, etc.									
A. Cock	do	25	2.00	50.00	27	2.00	54.00	25	2.00	50.00
	Permit work									
P. Reilly	Repairs to concrete pavements.	25	5.00	125.00	27	5.00	135.00	26	5.00	130.00
G. W. Beall	do	7	4.00	28.00	20	4.00	80.00	25	4.00	100.00
	Deposit, United States Electric Light Co.	18	4.00	72.00	7	4.00	28.00	1	4.00	4.00
John Stinemetz	do	2	4.00	8.00						
	Repairs to concrete pavements.	21½	4.00	86.00	25½	4.00	102.00	20½	4.00	82.00
J. N. Clarkson	do	14	4.00	56.00	19½	4.00	78.00	6	4.00	24.00
Thos. McMahon	do									
	Current repairs to streets, etc.				4	4.00	16.00			
	Permit work	15	4.00	60.00	22	4.00	88.00	20	4.00	80.00
W. R. Lapham	Plumbers' assessment fund.							5	3.25	16.25
	do									
C. R. Unger	Permit work									
	Total			744.00			870.00			733.25

Name of employé.	Appropriation from which paid.	October.			November.			December.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
R. E. Boiseau	Permit work									
	do	20	$4.00	$80.00	25	$4.00	$100.00	25	$4.00	$100.00
	Current repairs to streets, etc.									
A. D. Raymond	Plumbers' assessment fund.									
C. L. Lanham	Permit work	19⅔	3.00	59.62	25	3.00	75.00	25	3.00	75.00
	Current repairs to streets, etc.									
A. Cock	do	25	2.00	50.00	24	2.00	48.00	25	2.00	50.00
	Permit work									
P. Reilly	Repairs to concrete pavements.	20	5.00	100.00	26	5.00	130.00	25	5.00	125.00
G. W. Beall	do	26	4.00	104.00	24	4.00	96.00	23½	4.00	94.00
	Deposit, United States Electric Light Co.							1½	4.00	6.00
John Stinemetz	do									
	Repairs to concrete pavements.	23	4.00	92.00	22½	4.00	90.00	16½	4.00	66.00
J. N. Clarkson	do	12½	4.00	50.00						
Thos. McMahon	do									
	Current repairs to streets, etc.									
	Permit work	22	4.00	88.00	18	4.00	72.00	9	4.00	36.00
W. R. Lapham	Plumbers' assessment fund.	26	3.25	84.50	25	3.25	81.25			
	do							25	4.00	100.00
C. R. Unger	Permit work	10	4.00	40.00	3	4.00	12.00			
	Total			748.12			704.25			652.00

F.—*List of temporary employés*—Continued.

INSPECTORS—Continued.

Name of employé.	Appropriation from which paid.	January.			February.			March.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
R. E. Boiseau	Permit work									
	do							27	$4.00	$108.00
	Current repairs to streets, etc.	26	$4.00	$104.00	23	$4.00	$92.00			
A. D. Raymond	Plumbers' assessment fund.									
C. L. Lanham	Permit work							27	3.00	81.00
	Current repairs to streets, etc.	26	3.00	78.00	23	3.00	69.00			
A. Cock	do	26	2.00	52.00	23	2.00	46.00			
	Permit work							24	2.00	48.00
P. Reilly	Repairs to concrete pavements.	26	5.00	130.00	24	5.00	120.00	27	5.00	135.00
G. W. Beall	do	26	4.00	104.00	24	4.00	96.00	27	4.00	108.00
	Deposit, United States Electric Light Co.									
John Stinemetz	do									
	Repairs to concrete pavements.									
J. N. Clarkson	do									
Thos. McMahon	do	6½	4.00	26.00						
	Current repairs to streets, etc.									
	Permit work									
W. R. Lapham	Plumbers' assessment fund.									
	do	21	4.00	84.00	24	4.00	96.00	27	4.00	108.00
C. R. Unger	Permit work									
Frank Cannon	Current repairs to streets, etc.	12½	4.00	50.00	6	4.00	24.00			
	Total			628.00			543.00			588.00

Name of employé.	Appropriation from which paid.	April.			May.			June.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
R. E. Boiseau	Permit work									
	do	25	$4.00	$100.00	26	$4.00	$104.00	26	$4.00	$104.00
	Current repairs to streets, etc.									
A. D. Raymond	Plumbers' assessment fund.									
C. L. Lanham	Permit work	25	3.00	75.00	26	3.00	78.00	26	3.00	78.00
	Current repairs to streets, etc.									
A. Cock	do									
	Permit work	25	2.00	50.00	26	2.00	52.00	26	2.00	52.00
P. Reilly	Repairs to concrete pavements.	25	5.00	125.00	27	5.00	135.00	26	5.00	130.00
G. W. Beall	do	25	4.00	100.00	27	4.00	108.00	26	4.00	104.00
	Deposit, United States Electric Light Co.									
John Stinemetz	do									
	Repairs to concrete pavements.									
Thos. McMahon	do				½	4.00	2.00			
	Current repairs to streets, etc.									
	Permit work	13	4.00	52.00	21½	4.00	86.00	14	4.00	56.00
W. R. Lapham	Plumbers' assessment fund.									
	do	25	4.00	100.00	26	4.00	104.00	26	4.00	104.00
Jas. L. Calhoun	Permit work	1	4.00	4.00						
Henry Tincher	Repairs to concrete pavements.				10½	4.00	42.00			
F. A. Beuter	do				2	4.00	8.00	4	4.00	16.00
	Total			606.00			719.00			644.00

F.—*List of temporary employés*—Continued.

INSPECTORS—Continued.

me of employé.	Appropriation from which paid.	Total days.	Rate.	Totals against each appropriation.	Total received by employé.
E. Boiseau	Permit work	6	$3.00	$18.00	
	do	243	4.00	972.00	
	Current repairs to streets, etc	49	4.00	196.00	$1,186.00
D. Raymond	Plumbers' assessment fund	69	4.00	276.00	276.00
L. Lanham	Permit work	250⅞	2.00 / 3.00	746.62½	
	Current repairs to streets, etc	49	3.00	147.00	893.62
Cock	do	200	2.00	400.00	
	Permit work	101	2.00	202.00	602.00
Reilly	Repairs to concrete pavements	304	5.00	1,520.00	1,520.00
W. Beall	do	280½	4.00	1,122.00	
	Deposit, United States Electric Light Co.	27½	4.00	110.00	1,232.00
hn Stinemetz	do	2	4.00	8.00	
	Repairs to concrete pavements	129½	4.00	518.00	526.00
N. Clarkson	do	52	4.00	208.00	208.00
hos. McMahon	do	7	4.00	28.00	
	Current repairs to streets, etc	4	4.00	16.00	
	Permit work	154½	4.00	618.00	662.00
R. Lapham	Plumbers' assessment fund	56	3.25	182.00	
	do	174	4.00	696.00	878.00
R. Unger	Permit work	13	4.00	52.00	52.00
rank Cannon	Current repairs to streets, etc	18½	4.00	74.00	74.00
as. L. Calhoun	Permit work	1	4.00	4.00	4.00
enry Tincher	Repairs to concrete pavements	10½	4.00	42.00	42.00
A. Beuter	do	2	4.00	24.00	24.00
	Total			8,179.62	8,179.62

FOREMEN.

Name of employé.	Appropriation from which paid.	July. Days.	July. Rate.	July. Amount.	August. Days.	August. Rate.	August. Amount.	September. Days.	September. Rate.	September. Amount.
W. Calhoun	Current repairs to streets, etc.	23	$4.00	$92.00				2	$4.00	$8.00
	Permit work				27	$4.00	$108.00	22	4.00	88.00
	Work on streets and avenues, southeast section.									
	Repairs to concrete pavements.									
	Deposits									
Cooksey	Current repairs to streets, etc.	23	4.00	92.00						
	Permit work				26½	4.00	106.00	25	4.00	100.00
	Work on streets and avenues, southwest section.									
	Public school building, third division, northeast.									
	Brightwood avenue									
	Repairs to concrete pavements.									
F. Walters	Current repairs to streets, etc.	13	4.00	52.00	9½	4.00	38.00	17½	4.00	70.00
	Permit work				2	4.00	8.00			
	Pumping expenses and pipe distribution.	7	4.00	28.00						
	Work on streets and avenues, Georgetown.				10¾	4.00	43.00			
	Current repairs to county roads.									
	Deposits	3	4.00	12.00	4	4.00	16.00	6½	4.00	26.00
J. White	Current repairs to streets, etc.	23	4.00	92.00						
	Permit work				25	4.00	100.00	23	4.00	92.00
	Deposits				1	4.00	4.00			

F.—*List of temporary employés*—Continued.

FOREMEN—Continued.

Name of employé.	Appropriation from which paid.	July.			August.			September.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
M. Mahaney	Current repairs to streets, etc.	23	$3.50	$80.50	26	$3.50	$91.00	22½	$3.50	$78.75
	Permit work							2	3.50	7.00
	Work on streets and avenues, northwest section.									
	Work on streets and avenues, northeast section.									
	Deposits							½	3.50	1.75
Thos. McMahon	Current repairs to streets, etc.									
	Pumping expenses and pipe distribution.									
T. J. Morrison	Current repairs to streets, etc.	20	4.00	80.00				1½	4.00	6.00
	Permit work				26½	4.00	106.00	11	4.00	44.00
	Cleaning and repairing sewers and basins.									
	Main and pipe sewers									
	Replacing obstructed sewers.									
	Suburban sewers									
	Pumping expenses and pipe distribution.									
	Extension of high service water distribution.									
	Repairs to concrete pavements.									
	Street lighting									
	Deposits							12½	4.00	50.00
	Work on streets and avenues, northwest section.	3	4.00	12.00						
T. H. Gibson	Current repairs to streets, etc.	7	3.50	24.50	4½	3.50	15.75	2	3.50	7.00
	Permit work				1	3.50	3.50			
	Cleaning and repairing sewers and basins.									
	Main and pipe sewers	1	3.50	3.50				2	3.50	7.00
	Replacing obstructed sewers.									
	Suburban sewers									
	Pumping expenses and pipe distribution.	3½	3.50	12.25	7	3.50	24.50			
	Repairs to concrete pavements.									
	Work on streets and avenues.									
	Deposits	15	3.50	55.13	17	3.50	59.50	22	3.50	77.00
John Stewart	Current repairs to streets, etc.	5½	3.75	20.62						
	Permit work	¾	3.75	2.81	1½	3.75	5.62			
	Cleaning and repairing sewers and basins.									
	Main and pipe sewers	6½	3.75	23.43	½	3.75	1.87			
	Replacing obstructed sewers.									
	Pumping expenses and pipe distribution.	1	3.75	3.75	1½	3.75	5.63			
	Deposits	6½	3.75	24.39	15	3.75	59.50	21	3.75	78.75
	Grand total			710.88			795.87			741.25

F.—*List of Temporary employés*—Continued.

FOREMEN—Continued.

ne of employé.	Appropriation from which paid.	October.			November.			December.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
7. Calhoun.....	Current repairs to streets, etc.	½	$4.00	$2.00	.....	.....	.....	.....	.....	.....
	Permit work.....	23	4.00	92.00	26	$4.00	$104.00	22	$4.00	$88.00
	Work on streets and avenues, southeast section.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Deposits.....	½	4.00	2.00	.....	.....	.....	.....	.....	.....
Cooksey	Current repairs to streets, etc.	1½	.....	5.00	¾	4.00	3.00	.....	.....	.....
	Permit work	23½	4.00	94.00	20¼	4.00	81.00	15	4.00	60.00
	Work on streets and avenues, southwest section.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Public school building, third division, northeast.	.....	.....	.....	5	4.00	20.00	5	4.00	20.00
	Brightwood avenue....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	.....	.....	.....
. Walters.....	Current repairs to streets etc	12	4.00	48.00	2	4.00	8.00	5	4.00	20.00
	Permit work.....	4	4.00	16.00	19	4.00	76.00	15½	4.00	62.00
	Pumping expenses and pipe distribution.	.....	.....	.....	1	4.00	4.00	.....	.....	.....
	Work on streets and avenues, Georgetown.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Current repairs to county roads.	6	4.00	24.00	2	4.00	8.00	.....	.....	.....
	Deposits.....	2	4.00	8.00	1	4.00	4.00	.....	.....	.....
J. White.....	Current repairs to streets, etc.	.....	.....	.....	.....	.....	.....	2½	4.00	10.00
	Permit work.....	23	4.00	92.00	26	4.00	104.00	12¼	4.00	49.00
	Deposits.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mahaney.....	Current repairs to streets, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Permit work.....	24	3.50	84.00	23½	3.50	82.25	13½	3.50	47.25
	Work on streets and avenues, northwest section.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Work on streets and avenues, northeast section.	.....	.....	.....	.....	.....	.....	1½	3.50	5.25
	Deposits.....	.....	.....	.....	2½	3.50	8.75	3	3.50	10.50
s. McMahon ..	Current repairs to streets, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Pumping expenses and pipe distribution.	.....	.....	.....	.....	.....	.....	.....	.....	.....
r. Morrison	Current repairs to streets etc.	.....	.....	.....	.....	.....	.....	7	4.00	28.00
	Permit work	25	4.00	100.00	25	4.00	100.00	15	4.00	60.00
H. Gibson.....	Curren repairs to streets, etc	.....	.....	.....	.....	.....	.....	3	3.50	10.50
	Cleaning and repairing sewers and basins	.....	.....	.....	1½	3.50	5.25	.....	.....	.....
	Main and pipe sewers..	.....	.....	.....	1	3.50	3.50	.....	.....	.....
	Replacing obstructed sewers.	.....	.....	.....	2¼	3.50	7.87	.....	.....	.....
	Suburban sewers.....	.....	.....	.....	.....	.....	.....	½	3.50	1.75
	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	5½	3.50	18.38
	Work on streets and venues.	.....	.....	.....	1	3.50	3.50	.....	.....	.....
	Deposits	26	3.50	91.00	18½	3.50	63.88	14½	3.50	49.87
n Stewart..... treets, etc.	Cleaning nd repairing sewers and basins.	.....	.....	.....	1½	3.75	5.62	.....	.....	.....
	Replacing obstructed sewers.	6 2/3	3.75	25.38	1	3.75	3.75	.....	.....	.....
	Pumping expenses and pipe distribution.	.....	.....	.....	.....	.....	.....	21½	3.75	80.63
	Deposits.....	18¼	3.75	68.37	21½	3.75	80.63	3½	3.75	13.12
	Grand total.....	.....	.....	751.75	.....	.....	777.00	.....	.....	634.25

F.—*List of temporary employés*—Continued.

FOREMEN—Continued.

Name of employé.	Appropriations from which paid.	January.			February.			March.		
		Day.	Rate.	Amount.	Day.	Rate.	Amount.	Day.	Rate.	Amount.
R. W. Calhoun	Current repairs to streets, etc.	9½	$4.00	$38.00	5	$4.00	$20.00	14	$4.00	$56.00
	Permit work	7½	4.00	30.00	7½	4.00	30.00	2	4.00	8.00
	Work on streets and avenues, southeast section.									
	Repairs to concrete pavements.									
	Deposits									
J. I. Cooksey	Current repairs to streets, etc.	8½	4.00	34.00				3	4.00	12.00
	Permi work	6½	4.00	26.00	10	4.00	40.00	10	4.00	40.00
	Work on streets and avenues, southwest section.									
	Public school building, third division, northeast.									
	Brightwood avenue							11	4.00	44.00
	Repairs to concrete pavements.									
T. J. Walters	Current repairs to streets, etc.							6½	4.00	26.00
	Permit work	19	4.00	76.00	13	4.00	52.00			
	Pumping expenses and pipe distribution.									
	Work on streets and avenues, Georgetown.									
	Current repairs to county roads.									
	Deposits							½	4.00	2.00
W. J. White	Current repairs to streets, etc.	9	4.00	36.00	11	4.00	44.00	26	4.00	104.00
	Permit work									
	Deposits									
M. Mahaney	Current repairs to streets, etc.	13	3.50	45.50	14¼	3.50	49.87	26	3.50	91.00
	Permi work									
	Work on streets and avenues, northwest section.									
	Work on streets and avenues, northeast section.									
	Deposits									
Thos. McMahon	Current repairs to streets, etc.							2	4.00	8.00
	Pumping expenses and pipe distribution.									
T. J. Morrison	Current repairs to streets, etc.				2 201/400	4.00	11.01	38/400	4.00	.38
	Permit work	111/400	4.00	1.11	204/400	4.00	2.04	188/400	4.00	1.88
	Cleaning and repairing sewers and basins.	10/400	4.00	.10	75/400	4.00	.75			
	Main and pipe sewers	383/400	4.00	3.63	78/400	4.00	.78			
	Replacing obstructed sewers.	32/400	4.00	.32	80/400	4.00	.80			
	Suburban sewers	74/400	4.00	.74						
	Pumping expenses and pipe distribution.	13/400	4.00	.13	242/400	4.00	2.42	3195/400	4.00	13.00
	Extension of high-service water distribution.	13/400	4.00	.13	170/400	4.00	1.70	3195/400	4.00	13.00
	Repairs to concrete pavements.									
	Street lighting							1798/400	4.00	7.00
	Deposits	20184/400	4.00	81.84	9 55/400	4.00	36.50	16178/400	4.00	65.71
	Grand total			373.50			291.87			492.00

F.—*List of temporary employés*—Continued.

FOREMEN—Continued.

me of employé.	Appropriation from which paid.	April.			May.			June.		
		Days.	Rate.	Amount.	Days.	Rate.	Amount.	Days.	Rate.	Amount.
V. Calhoun.....	Current repairs to streets, etc.	13 31/400	$4.00	$52.31	15	$4.00	$60.00	2	$4.00	$8.00
	Permit work.....	3	4.00	12.00	.....	.....	.....	12½	4.00	50.00
	Work on streets and avenues, southeast section.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Repairs to concrete pavements.	.....	.....	.....	12	4.00	48.00	12	4.00	48.00
	Deposits.....	5 169/400	4.00	21.69	.....	.....	.....	.....	.....	.....
Cooksey.....	Current repairs to streets, etc.	14½	4.00	58.00	8	4.00	32.00	7½	4.00	29.00
	Permit work.....	4½	4.00	18.00	2¾	4.00	11.00	.....	.....	.....
	Work on streets and avenues, southwest section.	1	4.00	4.00	15¼	4.00	61.00	2¼	4.00	9.00
	Public school building, third division, northeast.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Brightwood avenue ...	2	4.00	8.00	.....	.....	.....	.....	.....	.....
	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	15	4.00	60.00
I. Walters	Current repairs to streets, etc.	21	4.00	84.00	26	4.00	104.00	8½	4.00	34.00
	Permit work.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Pumping expenses and pipe distribution.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Work on streets and avenues, Georgetown.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Current repairs to county roads.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Deposits.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
J. White	Current repairs to streets, etc.	1	4.00	4.00	.....	.....	.....	.....	.....	.....
	Permit work.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Deposits.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mahaney.....	Current repairs to streets, etc.	22	3.50	77.00	23	3.50	80.50	9½	3.50	33.25
	Permit work.....	.....	.....	.....	2	3.50	7.00	4	3.50	14.00
	Work on streets and avenues, northwest section.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Work on streets and avenues, northeast section.	.....	.....	.....	.....	.....	.....	8	3.50	28.00
	Deposits.....	.....	.....	.....	½	3.50	1.75	.....	.....	.....
os. McMahon ...	Current repairs to streets, etc.	31/400	4.00	.51	.....	.....	.....	.....	.....	.....
	Pumping expenses and pipe distribution.	348/400	4.00	3.49	.....	.....	.....	.....	.....	.....
J. Morrison.....	Current repairs to streets, etc.	278/400	4.00	2.79	332/400	4.00	3.22	4 35/400	4.00	16.25
	Permit work.....	320/400	4.00	3.20	153/400	4.00	1.53	108/400	4.00	1.08
	Cleaning and repairing sewers and basins.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Main and pipe sewers.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Replacing obstructed sewers.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Suburban sewers	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Pumping expenses and pipe distribution.	245/400	4.00	2.28	1 324/400	4.00	6.04	266/400	4.00	2.66
	Extension of high-service water distribution.	.....	.....	.....	5 113/400	4.00	21.13	324/400	4.00	3.24
	Repairs to concrete pavements.	.....	.....	.....	.....	.....	.....	23/400	4.00	.23
	Street lighting.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Deposits.....	20 373/400	4.00	83.73	19 4/400	4.00	76.08	20 54/400	4.00	80.54
	Grand total.....	.....	.....	435.00	.....	.....	513.25	.....	.....	417.25

F.—*List of temporary employés*—Continued.

FOREMEN—Continued.

Name of employé.	Appropriation from which paid.	Total days.	Rate.	Total against each appropriation.	Total received by employé.
R. W. Calhoun	Current repairs to streets, etc	84 31/100	$4.00	$336.31	
	Permit work	152½	4.00	610.00	
	Work on streets and avenues, southeast section.		4.00		
	Repairs to concrete pavements	24	4.00	96.00	
	Deposits	5 368/400	4.00	23.69	$1,066.00
J. I. Cooksey	Current repairs to streets, etc	66½	4.00	265.00	
	Permit work	144	4.00	576.00	
	Work on streets and avenues, southwest section.	18½	4.00	74.00	
	Public school building, third division, northeast.	10	4.00	40.00	
	Brightwood avenue	13	4.00	52.00	
	Repairs to concrete pavements	15	4.00	60.00	1,067.00
T. J. Walters	Current repairs to streets, etc	121	4.00	484.00	
	Permit work	72½	4.00	290.00	
	Pumping expenses and pipe distribution.	8	4.00	32.00	
	Work on streets and avenues, Georgetown	10¾	4.00	43.00	
	Current repairs to county roads	8	4.00	32.00	
	Deposits	17	4.00	68.00	949.00
W. J. White	Current repairs to streets, etc	72½	4.00	290.00	
	Permit work	109¼	4.00	437.00	
	Deposits	1	4.00	4.00	731.00
M. Mahaney	Current repairs to streets, etc	240½	3.50	840.87	
	Permit work	8	3.50	28.00	
	Work on street and avenues, northwest section.	1½	3.50	5.25	
	Work on streets and avenues, northeast section.	8	3.50	28.00	
	Deposits	6½	3.50	22.75	924.87
Thos. McMahon	Current repairs to streets, etc	2 51/100	4.00	8.51	
	Pumping expenses and pipe distribution.	349/400	4.00	3.49	12.00
T. J. Morrison	Current repairs to streets, etc	36 305/400	4.00	147.65	
	Permit work	105 81/100	4.00	420.61	
	Cleaning and repairing sewers and basins.	85/400	4.00	.85	
	Main and pipe sewers	1 41/100	4.00	4.41	
	Replacing obstructed sewers	112/400	4.00	1.12	
	Suburban sewers	74/400	4.00	.74	
	Pumping expenses and pipe distribution.	6 338/400	4.00	26.58	
	Extension of high-service water distribution.	9 323/400	4.00	39.25	
	Repairs to concrete pavements	23/400	4.00	.23	
	Street lighting	1 308/400	4.00	7.08	
	Deposits	118 348/400	4.00	474.48	
	Work on streets and avenues, northwest section.	3	4.00	12.00	1,135.00
T. H. Gibson	Current repairs to streets, etc	16½	3.50	57.75	
	Permit work	1	3.50	3.50	
	Cleaning and repairing sewers and basins.	1½	3.50	5.25	
	Main and pipe sewers	4	3.50	14.00	
	Replacing obstructed sewers	2¼	3.50	7.87	
	Suburban sewers	½	3.50	1.75	
	Pumping expenses and pipe distribution.	10½	3.50	36.75	
	Repairs to concrete pavements	5¼	3.50	18.38	
	Work on streets and avenues	1	3.50	3.50	
	Deposits	113 88/350	3.50	396.38	545.13
John Stewart	Current repairs to streets, etc	5½	3.75	20.62	
	Permit work	2¼	3.75	8.43	
	Cleaning and repairing sewers and basins.	1½	3.75	5.62	
	Main and pipe sewers	6¾	3.75	25.30	
	Replacing obstructed sewers	7 388/775	3.75	29.13	
	Pumping expenses and pipe distribution.	24	3.75	90.01	
	Deposits	86 238/775	3.75	324.76	503.87
	Grand total			6,933.87	6,933.87

The following is a statement of the number of square yards and cost of all plumbers' cuts made in improved streets during the year ended June 30, 1894:

Character.	Number.	Square yards.	Cost.
Sheet asphalt	428	1,427.50	$4,293.43
Granite block	211	915.27	1,230.79
Asphalt block	146	561.48	742.49
Cobblestone	329	1,199.71	579.06
Vitrified brick	67	192.16	238.27
Macadam	68	276.98	334.50
Total	1,249	4,573.10	7,418.54

The following cuts have been repaired and charged to the appropriations specified:

Appropriation.	Number.	Square yards.	Cost.
Water department	267	3,406.61	$3,124.78
Sewer department	226	13,710.62	4,400.47
Current repairs to streets, avenues, and alleys (surface repairs over sewer cuts)	174	14,217.63	4,854.21
Repairs to concrete pavements	3	28.87	30.55
Street lighting	3	15.61	7.89
Purchase and repairs of pumps	2	2.67	2.03
Total	675	31,382.01	12,419.93

NOTE.—The above amounts do not show the cost of surface repairs to sheet-asphalt pavements, except as shown for the repairs over sewer cuts, which amounted to $601.51, and is included in the above amount.

The following cuts have been repaired and charged to the deposits specified:

Deposit.	Character.	Number.	Square yards.	Cost.
Washington Gaslight Co	Sheet asphalt	152	2,362.97	$5,642.13
	Granite block	55	509.23	645.62
	Asphalt block	32	449.00	378.96
	Cobblestone	31	654.63	182.50
	Vitrified brick	1	.66	.90
	Macadam	13	195.67	215.55
	Total	284	4,142.16	7,065.66
Chesapeake and Potomac Telephone Co	Sheet asphalt	6	66.24	184.27
	Asphalt block	1	11.50	4.60
	Total	7	77.74	188.87
United States Electric Light Co	Sheet asphalt	27	144.66	372.18
	Granite block	5	25.50	15.64
	Cobblestone	2	60	6.00
	Granolithic	1	12.86	22.31
	Asphalt block	2	45.50	61.43
	Total	37	288.52	477.56
Washington Aqueduct	Sheet asphalt	4	22.48	35.23
Eckington and Soldiers' Home R. R. Co	do	1	72.58	71.59
Geo. N. Walker	Brick sidewalk	1	56.67	15.27
	Total	6	151.73	122.09

The following is a comparison of the repairs made to plumbers' cuts during the year ended June 30, 1894, and the four preceding years:

Year.	Number.	Square yards.	Cost.
1889–'90	393	2,085.06	$3,712.06
1890–'91	852	3,899.61	6,488.02
1891–'92	980	5,220.50	6,994.58
1892–'93	2,132	8,694.67	14,025.68
1893–'94	1,583	9,233.25	15,272.72

I desire at this time to reiterate the statement made in previous annual reports that the difference between the fixed cost of repairs to plumbers' cuts and the estimated cost of the same may be explained by the fact that the broken brick and stone used in the preliminary base has been furnished at the cost of labor only, but in the near future this material must be purchased by contract, which will increase the cost to the standard of estimated prices.

Respectfully submitted.

H. N. Moss,
Superintendent of Streets.

The following is a report of the repairs made to cuts in improved pavements during the fiscal year ended June 30, 1894, giving the name and amount charged the respective registered plumbers:

John A. Anadale	$154.42	John W. Hurley	$42.41
Jas. E. Albinson	90.32	Thos. Humphrey	35.70
Jas. F. Anderson	9.19	Jas. T. Harrison, jr	95.18
J. I. Atchison	72.19	P. F. Hannan	90.37
Wm. L. Anderson	31.57	Hill & Prigg	49.75
Samuel Artz	118.72	Hannan & Co	65.91
C. B. Atchison	2.70	Thos. Hurney	44.33
Jos. D. Bond	106.67	J. Wm. Harper	28.91
Bowden & Buechler	55.06	W. S. Jenks	9.75
Brill & Hayden	90.23	John Krause	69.71
Thomas Brown	74.75	John Keppel	53.31
Rufus C. Brooks	65.98	Kennedy & Schaefer	94.84
W. O. Berry	20.92	T. W. Kerr	59.70
John A. Butler	22.42	William Koch	32.28
Chas. E. Barrick	54.86	Denis Koehane	20.85
Max A. Beuter	20.25	Chas. Lockhead	82.97
Edw. Barnard	43.25	James Lockhead	84.44
Wm. R. Bouis	105.11	G. L. Litz	6.30
Bontz & Stutz	47.50	John Moran	168.05
John Carmody	197.85	R. Mills	34.74
Edward Caverly & Co	130.05	F. L. Marsden	62.75
Robt. G. Campbell	23.70	Geo. H. Maisak	56.60
Marcellus Cole	58.83	Daniel J. Murphy	65.22
Wm. P. Campbell	66.10	Ed. Mallet, jr. (Mallet & Hodge)	95.99
Jas. A. Creamer & Bro	29.45	John Mitchell	120.43
J. B. Clarke	23.53	R. McBee	55.14
Thos. C. Clarke	34.84	Geo. F. McAvoy	4.50
Chesapeake and Potomac Telephone Co	188.87	J. J. McCann	46.12
A. G. Curtin	40.43	J. J. McMahon	62.53
J. M. Connor	51.30	W. A. E. McShea	7.20
T. A. Cannon	12.23	J. D. McGrath	5.25
Devereux & Gaghan	173.32	Jas. Nolan	105.03
A. S. Dent	132.15	P. T. Niland	39.30
William Duffy	123.02	T. V. Noonan	17.05
W. W. Dougherty	6.30	J. M. O'Callaghan & Bro	2.82
T. S. Donaldson	33.79	Jas. O'Hagan	23.05
Chas. E. Dessez	29.80	M. J. O'Brien	53.00
John Daly	92.15	D. A. O'Donnell	12.95
Frank Daly & Co	19.88	John A. Power & Co	280.24
C. A. Dorsett	42.87	Postal Telegraph Co	3.45
Edwards & Myers	77.03	Norman Pruitt	72.72
Robt. Fitzgerald	91.18	Joseph R. Quinter	225.23
P. J. Fingles	2.42	Wm. Reynolds	125.88
Geo. A. Green	52.28	John E. Rodbird	35.40
Georgetown Gas Light Co	558.28	S. B. Rose	19.80
Edward Gorman	220.64	Jas. P. Robertson	102.46
Chas. E. Garratt	117.29	M. Robinson	72.89
Wm. E. Goss	22.20	John Reinhart	39.10
Geo. W. Goodall	5.40	James Roache	215.90
Daniel Hannan	119.28	G. F. Schaeffer	20.40
Jas. F. Horan	220.74	S. J. Spearing	62.29
Jos. A. Herbert	63.59	A. R. Shepherd	115.55
Jas. T. Harrison & Son	114.14	James L. Suman	34.06
G. E. Hutchins	209.35	S. S. Shedd & Bro	168.71
		Daul. P. Sullivan	57.30

S. H. Sherwood	$127.59	William Thomas	$21.60
J. G. Schlosser & Co	92.35	C. F. Umhau	80.72
D. E. Shea	9.82	Ches. and Pot. Tel. Co	188.87
W. A. Sparrow	15.52	W.P. Vandegrift	19.80
B. A. Soper	53.35	F. W. Venable	2.25
Wm. T. Sweet	12.00	Wm. N. Ward	65.65
Fred. Tilp	95.61	D. S. Williamson	76.52
Alex. Tennant	92.78	Ward & Cunningham	204.01
Chas. G. Thorn	71.69	W. J. Work	68.68
Wm. A. Thomas	42.07	Washington Gas Light Co	7,065.66
E. H. Tompkins	28.30	William Whelan	89.34

Very respectfully,

HORACE M. WOODWARD,
Permit Clerk.

REPORT OF SUPERINTENDENT OF COUNTY ROADS.

WASHINGTON, *July 30, 1894.*

SIR: I have the honor to submit herewith report of expenditures made under my supervision from the various appropriations for fiscal year 1893–'94 in improving county roads and suburban streets, and estimates for 1895–'96.

Very respectfully,

GEO. N. BEALE,
Superintendent of Roads.

To the ENGINEER COMMISSIONER, D. C.
(Through Capt. G. J. Fiebeger, U. S. Army.)

EXPENDITURES.

Repairing county roads and suburban streets, fiscal year 1893–'94.

Name of road.	Amount expended.	Name of road.	Amount expended.
CENTRAL SECTION.		CENTRAL SECTION—continued.	
Agyle Mill	$44.50	Trumbull street	$5.13
Bates	1.50	Whitney avenue	1,097.03
Bennings	1,605.15	Woodley Lane road	515.64
Blair	5.13	Yale street	79.99
Bladensburg	47.87	Klingle road	35.68
Brentwood	2,328.10	Sherman avenue	2.50
Brown street	.31	Kenesaw avenue	70.01
Bunker Hill road	616.82	Ontario avenue	38.75
Carroll avenue	40.62	Lanier avenue	4.00
Central avenue	14.74	Fourth street extended NE	3.93
Fifteenth street extended NW	80.81	Seventeenth street extended NW	.31
Holmead avenue	32.50	R street extended NW	39.64
Harewood road	190.94	First street extended NW	239.44
Howard street	3.25	Massachusetts avenue (Kalorama)	9.06
Lincoln avenue	592.03	Park road (Kalorama)	274.18
Linnaen Hill road	474.16	Twelfth street extended, NE	232.61
Lydecker avenue	20.42	Eighteenth street extended, NW	.81
Military road	516.22	Florida avenue NW	2.00
Montello subdivision	1.50	T street extended, NW	28.00
Mount Olivet road	52.75	M street extended, NE	27.75
Nineteenth street extended NW	1.91	Brightwood avenue	8,643.43
Ninth street extended NW	13.86	Fourth street extended, NW	13.37
Oak street, Mount Pleasant	1.50	Levis street	4.00
Park street	146.37	Rock Creek Church road	534.91
Pomeroy street	6.99	Columbia road	555.83
Prospect street	30.72	Howard avenue	11.38
Queen Chapel road	162.91	Fourteenth street road	415.85
Riggs	120.94	Wallach street	85.62
Sandy Spring	16.00	Trinidad avenue	5.50
Scott avenue	1.62	Crescent street	30.11
Sheridan street	1.37	Quarry road	1,831.38
Shepherd road	110.64	Morris street	.82
Sixteenth street extended NW	215.90	Cincinnati street	76.17
Sixth street extended NW	11.16	Magnolia avenue (Takoma)	10.25
Spring street	53.12	Maple avenue (Takoma)	16.19
Sumner street	4.62	Chestnut avenue (Takoma)	10.25
Thirteenth street extended NW	910.40	Vine street (Takoma)	5.12

Repairing county roads and suburban streets, fiscal year 1893-'94—Continued.

Name of road.	Amount expended.
CENTRAL SECTION—continued.	
Holly avenue (Takoma)	$15.37
Elm street (Le Droit Park)	48.20
Harewood avenue	7.12
Spruce street (Le Droit Park)	4.75
Wallace street (Brookland)	16.93
Lansing street (Brookland)	3.25
Frankfort street (Brookland)	2.68
Fort street (Brookland)	46.41
Dover street (Brookland)	17.37
Concord street (Brookland)	7.56
Burns street (Brookland)	3.08
Queen street (Brookland)	11.63
Providence street (Brookland)	27.39
Duncan street (Brookland)	11.19
Argyle street (Brookland)	3.25
Austin street (Brookland)	15.68
Twenty-second street extended, NE. (Langdon)	25.63
Detroit street extended, NE. (Langdon)	9.08
Twenty-fourth street extended, NE. (Langdon)	16.93
Emporia street extended, NE. (Langdon)	17.73
Blacksmithing	296.50
Miscellaneous labor	1,157.08
Material for general use	1,396.54
Total	26,597.34
EASTERN SECTION.	
Anacostia road	46.75
Adams street	16.25
Bowen road	863.26
Fillmore street	13.25
Giesboro road	297.87
Good Hope	149.24
Hamilton	69.25
Harrison street	505.15
Jefferson street	335.54
Livingston road	409.32
Morris road	50.75
Naylor road	37.00
Pierce street	13.25
Race Course road	213.75
Sheridan avenue	4.50
Sheriff road	7.75
Staunton avenue	21.37
Stephenson avenue	42.76
Washington street	2.25
Wheeler road	10.50
Walker road	4.50
Washington street (Lincolnville)	28.67
Bell street (Lincolnville)	28.66
Lincoln avenue (Lincolnville)	28.66
EASTERN SECTION—continued.	
Howard street (Hillsdale)	$75.00
Pleasant street	7.00
Maple avenue	23.75
Navy avenue	3.00
Bridge street	5.38
Pomeroy street	20.25
Taylor street	14.00
Pennsylvania avenue extended, SE.	57.87
Chestnut street	46.08
High street	23.25
Avelon street	3.00
Minnesota avenue	94.62
Douglass avenue	7.75
Nichols avenue	1,408.33
Bennings road	188.36
Franklin street	1.50
Blacksmithing	55.40
Miscellaneous labor	498.76
Materials for general use	18.60
Total	5,752.15
WESTERN SECTION.	
Brookville road	9.37
Broad Branch road	109.93
Canal road	1,450.43
Chain bridge road	12.19
Chappell road	292.29
Falls road	15.00
Foxhall road	137.25
Grant road	362.24
Klingle road	43.94
Loughborough road	3.75
Military road	30.87
Murdock Mill road	81.25
New cut road	1,035.36
Pierce Mill road	275.50
Ridge road	149.25
River road	1.25
Tunlaw road	323.18
Woodley Lane road	401.74
Tennallytown road	344.43
Howard street (Reno)	13.75
Milwaukee street (Oak View)	82.36
Thirty-fourth street extended (Oak View)	10.93
Thirty-sixth street extended (Burleith)	80.21
Connecticut avenue extended	125.87
Newark street (Cleveland Park)	22.00
Blacksmithing	54.35
Miscellaneous labor	916.09
Material for general use	1,244.49
Total	7,629.27

RECAPITULATION—APPROPRIATION, REPAIRS, COUNTY ROADS, ETC., 1894.

Central section	$26,597.34
Eastern section	5,752.15
Western section	7,629.27
Total	39,978.76
Amount of appropriation	40,000.00
Amount of expenditures	39,978.76
Balance	21.24
Expended for labor	33,823.31
Expended for material	6,155.45
	39,978.76

The principal items of expenditures under the appropriation for county roads and suburban streets were on the following named roads and streets:

Bennings road, between Florida avenue and Eastern branch, graveling and general repairs.

Brentwood road, north of Patterson avenue, macadamizing and graveling.

Bunker Hill road, general repairs.

Linnaen Hill road, grading, widening, and macadamizing.

Military road, grading and widening and gutters.

Thirteenth street NW., from Princeton to Harvard street, macadamizing, grading, and graveling.

Whitney avenue, macadamizing and graveling.

Woodley lane (east of Rock Creek), grading and macadamizing.

Brightwood avenue, repaving with granite block between Florida avenue and Pomeroy street, and macadamizing and graveling north of Rock Creek Church road.

Rock Creek Church road, general repairs.

Columbia road, general repairs.

Fourteenth Street road, general repairs.

Quarry road, grading and graveling.

Bowen road, graveling.

Giesboro road, grading.

Harrison street, graveling.

Livingston road, graveling.

Nichols avenue, graveling.

Canal road, macadamizing.

Grant road, general repairs.

New Cut road, macadamizing and graveling.

Woodley Lane road (west of Rock Creek), graveling.

Tennallytown road, general repairs.

General repairs were made on the other roads and gutters cleaned, etc.

Expenditures from appropriation for permit work, 1893–1894.

COMPULSORY WORK.

Location.	Grading.	Brick sidewalk.	Plank walk 4 feet wide.	Cost.
	Cu. yds.	*Sq. yds.*	*Lin. ft.*	
Harrison street, Anacostia, between Pierce and Avalon	150	1,518.5	.....	$1,096.02
Jefferson street, Anacostia, from Taylor street eastward	655	1,782	.....	1,088.80
Superior street, between Champlain avenue and Sixteenth street	.....	.....	1,382.4	274.31
Bunker Hill road, between Railroad and Wallace streets	.....	.....	303	64.77
Fort street, between Wallace and Thirteenth streets	.....	.....	878.1	187.54
Central avenue, Meridian Hill, between Crescent and Erie	.....	.....	1,007.9	180.54
Total	805	3,300.5	3,571.4	2,891.98

VOLUNTARY WORK.

Location.	Brick sidewalk.	Cobble gutters.	Cost.
	Sq. yds.	*Sq. yds.*	
Spring street, Anacostia, between Maple street and Morris road	334.2	167.1	$376.43

RECAPITULATION—PERMIT WORK, 1894.

Work under compulsory system	$2,891.98
Work under ordinary provision of the law, the property holders making deposit of half of cost	376.43
Total	3,268.41

Expenditures by road department on various county roads and suburban streets from appropriations, as follows:

Current repairs streets, etc., 1894: Canal road, between Aqueduct bridge and Foxhall road	$316.99
Sprinkling streets, avenues, etc., 1894: Various roads and suburban streets	501.23
Extension of high service (water department), 1894: Brightwood avenue *(repairing cut)*	16.25

Brightwood avenue, 1894	$170.69
Champlain avenue, etc., 1894: Champlain avenue and Sixteenth street extended	1,272.67
Suburban sewers, 1893 (repairing cuts)	180.45
Suburban sewers, 1894 (repairing cuts)	351.80
Permit work (sewers), 1894 (repairing cuts)	73.89
Deposit of Washington Gaslight Company (repairing cut)	1.61
North Capitol street	69

SUMMARY.

Appropriation current repairs, county roads, etc., 1894	$39,978.76
Appropriation permit work (roads), 1894	3,268.41
Appropriation permit work (sewers), 1894	73.89
Appropriation current repairs, streets, etc., 1894	316.99
Appropriation sprinkling streets, avenues, etc., 1894	501.23
Appropriation extension of high service (water department), 1894	16.25
Appropriation Brightwood avenue, 1894	170.69
Appropriation Champlain avenue, 1894	1,272.67
Appropriation suburban sewers, 1893	180.45
Appropriation suburban sewers, 1894	351.80
Appropriation North Capitol street	9.69
Deposit of Washington Gas Light Company	1.61
Total	46,142.44

Estimates for fiscal year 1896.

Bladensburg road, resurfacing	$5,000.00
Brightwood avenue, from Brightwood to District line, resurfacing	5,000.00
Brightwood avenue, to continue granite-block pavement	10,000.00
Michigan avenue, grading and regulating	10,000.00
Nichols avenue, for continuing granite pavement	8,000.00
Tennallytown road, resurfacing	5,000.00
First street extended N. W., from S street to W street, paving	18,000.00
Minnesota avenue, from Pennsylvania avenue eastward	5,000.00
Sprinkling county roads and suburban streets	5,000.00
For current repairs on county roads and suburban streets	75,000.00
Total	146,000.00

The appropriation for the past year ($40,000.) was inadequate to keep the roads in a creditable condition. The number of miles of roadway to be repaired under this appropriation increases each year, and a larger appropriation is very necessary that these highways may be kept in order. An appropriation for sprinkling, as estimated above, is much needed.

Employés road department (per diem).

Name.	Designation.	Rate.	Appropriation repairs roads, 1894.		Permit work (roads), 1894.		Permit work (sewers), 1894.		Suburban sewers, 94.		Repairs streets, etc., 1894.	
			Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.	Days.	Amount.
R. D. Simms	Clerk	$4.00	255	$1,020.00	23	$92.00						
C. H. Collins	Foreman	3.00	283	849.00	10	30.00	1	$3.00	½	$1.50	10½	$31.50
J. A. Donaldson	do	3.00	208	624.00					*18	54.00		
C. F. Walson	do	3.00	223	669.00	23	69.00					6	18.00
Geo. VonDachenhausen	do	2.00	25	281.75	20¼	60.75			*11	33.00		
		2.50	1									
		3.00	93¾									

* Sixteenth street extended, 1894.

REPORT OF BRIDGE DEPARTMENT.

CAPTAIN: I have the honor to submit the following annual report for the fiscal year 1894:

ORDINARY CARE OF BRIDGES, 1894.

The bridges provided with keepers were well policed during the year. The number of keepers was reduced by one, no detail being now made to the Chain bridge. During the year a number of arrests were made and convictions secured for violations of the police regulations respecting rate of travel over public bridges.

Statement of appropriation.

Amount of appropriation	$5,000.00
Amount expended	4,608.92
Balance	391.08

CONSTRUCTION AND REPAIR OF BRIDGES, 1894.

More than two-thirds of the amount of this appropriation was expended on three bridges within the city limits, viz, the Aqueduct bridge over the Potomac River, No. 7; the Navy-yard bridge over the Eastern Branch, No. 55, and the N street bridge over James Creek Canal. At the Aqueduct bridge a new floor was laid under contract, iron bands were placed around pier No. 4 on account of defects in its masonry, and a cantilever construction built on the same pier to transfer the weight of the bridge structure from the ends of the pier to its center. At the Navy-yard bridge the laying of a new roadway floor under contract was completed, and the mechanism for operating the draw span was replaced by a different construction, designed to prevent the delays that have occurred in the past. At the N street bridge over James Creek Canal repairs were made to the floor and trusses temporarily, and a new plate girder superstructure was purchased, but not erected from lack of funds.

Wooden bridges on the Shepherd road over Piney Branch and on Naylor road near the District line were reconstructed as arch culverts, and the Fourteenth street bridge over Piney Branch was reconstructed as a steel-girder bridge. The painting of the superstructure of Pennsylvania avenue bridge over the Eastern Branch, under contract, was completed and extensive repairs were made to its roadway floor. The two bridges on Spring road were abandoned and filled up, recent sewer construction, with proper surface traps, making their maintenance unnecessary. The culvert under the Broad Branch road, just east of Chappell road, was rebuilt with a larger waterway and a changed alignment so as to better carry the flood flow of the stream. The railing of Bennings road bridge was painted; a box drain constructed at Twenty-eighth and S streets SE. The culvert on Queen Chapel road north of Brentwood road was extended to the full width of the road and a cribwork constructed northward from its mouth. The top chords and struts of Chain bridge over the Potomac were painted and about fifty minor cases of construction and repair were executed.

The following table exhibits the expenditures in detail, showing an unexpended balance of $3.63:

Order.	Bridge.	Amount.	Remarks.
117	Culvert	$4.00	Repairs, Bladensburg road, south of Queen Chapel road.
118	do	5.00	Repair, Stanton avenue, Hillsdale.
119	Box drain	14.00	Built, Seventeenth street NE.
120	73	13.50	Reconstructed.
121	72	7.00	Repair abutments.
122	Culvert	45.50	Reconstructed on Race Track road.
123	do	38.00	Constructed, pipe on A street, Hillsdale.
124	54	184.87	Repair floor and paint rail on approaches.
125	55	188.21	Reconstruct floor of draw span.
126	35	65.00	Repair abutments and hand railing.
127	61	83.65	Construct protecting bulkhead.
128	45	29.25	Pave bottom of waterway.
129	59	14.00	Do.
130	7	932.75	Relay canal-span floor, etc.
131	21	447.33	Reconstruct as arch culvert.
132	38	18.66	Repair back wall.
133	49	14.03	Repair floor.
134	51	7.42	Do.
135	16	6.31	Do.

Order.	Bridge.	Amount.	Remarks.
136	40	$175.54	Repair floor, put in new laterals, repair trusses.
137	Culvert	576.23	Reconstruct on Broad Branch road at Harry Place.
138	52	166.83	Paint railing and repair wall and gutters.
139	20	40.19	Repair floor.
140	25	14.06	Do.
141	31	33.43	Repair hand rail, sidewalk, and guard rail.
142	19	11.05	Repair floor.
143	34	45.00	Overhaul iron, change guard and hand rail.
144	64	7.41	Repair floor.
145	26	6.38	Do.
146	18	2.10	Do.
147	1	68.00	Paint top chords and struts.
149	Box drain	31.25	Construct, Bunker Hill road at Providence street.
151	do	164.49	Construct, at Twenty-eighth and S streets SE.
152	Culvert	18.95	Rebuild wing wall on Brightwood avenue, near District line.
153	Crib	77.25	Build crib work north from culvert (of order 154).
154	Culvert	113.05	Extend culvert on Queen Chapel road north of Brentwood road.
155	24	309.63	Reconstruct as steel girder bridge.
156	36	27.05	Repair floor.
157	23	91.71	Remove structure and fill up.
158	65	275.73	Reconstruct as arch culvert.
159	53	7.31	Repair floor.
162	48	8.25	Repair approaches.
164	7	336.31	Put iron bands around pier No. 4.
165	7	847.39	Construct cantilever on pier No. 4.
166	Culvert	5.50	Repair culvert on Tennallytown road.
167	55	32.25	Repair sidewalk and hand rail.
168	55	891.38	Reconstruct draw mechanism.
169	1	.75	Repair floor.
170	Culvert	3.25	Barricade broken culvert at Thirty-second and Thirty-fourth streets.
171	Tool house	6.00	Repair tool house at Second and Canal streets SW.
Contract 1777.	54	115.10	Material for painting.
		75.00	Inspection of painting.
Contract 1790.	55	39.00	Inspection of floor laying.
Contract 1880.	7	1,170.00	Face of contract for relaying floor.
		3,518.70	Material for relaying floor.
		144.00	Inspection on relaying floor.
Contract 1911.	40	1,545.84	Face of contract for new steel superstructure.
		57.63	Inspection of new steel superstructure.
Current	7	86.04	Material for current repairs to floor.
Current	54	112.03	Do.
Tools	Various	218.65	Purchase of tools for general use.
Engineer	Various	399.18	Salary of engineer of bridges.
	Total	13,996.37	

P STREET BRIDGE OVER ROCK CREEK.

The repairs of this structure authorized by the general deficiency bill for the fiscal year 1892 were completed during the past fiscal year. This work was authorized to be done under your supervision at the cost of the Metropolitan Railroad Company, whose street car tracks cross the bridge, the limit of cost being fixed at $15,000. The operations under this authorization were described in my last annual report up to the beginning of the fiscal year 1894. Since then the contract work (with the Penn Bridge Company, of Beaver Falls, Pa.) has been executed in full and the repairs completed.

Statement of expenditures.

Contract Penn Bridge Company (face of contract)		$9,395.00
Extra work under contract, 36,992 pounds steel, at 4½ cents		1,664.64
Extra work, cost of changes to masonry, plus 15 per cent		94.56
		11,154.20
Less inspection charges, etc		146.73
Amount paid Penn Bridge Company in full		11,007.47
Sundry labor and material		502.64
Total cost of repairs (limit, $15,000)		11,510.11

REPORTS.

During the year formal reports with estimates were made on the submarine condition of the Aqueduct bridge; on the proposed use of the same structure for street railway purposes; on the proposed similar use of the Pennsylvania avenue bridge over the Eastern Branch; on the proposed construction of a highway bridge over the tracks of the Metropolitan Branch at Lowell street; and on the proposed repair of the masonry and parapet of the wall along the canal road from the Aqueduct to the Chain bridge.

RECOMMENDATIONS AND ESTIMATES.

It does not seem proper to add to the recommendations made in my last annual report. They are therefore repeated here—

That the two appropriations for ordinary care of bridges and for construction and repair of bridges be consolidated into a single one "For bridges."

That K street bridge over Rock Creek be reconstructed at an estimated cost of $20,000.

That the Navy-yard bridge over the Eastern Branch be reconstructed at an estimated cost of $250,000.

That M street bridge over Rock Creek be reconstructed with a paved-floor system at an estimated cost of $30,000.

That the approaches and superstructure of P street bridge over Rock Creek be widened and the bridge provided with a paved-floor system at an estimated cost of $35,000.

That a bridge be constructed over Rock Creek on the line of Massachusetts avenue extended at an estimated cost of $175,000.

For the regular annual appropriation for bridges the sum of $25,000 is recommended.

Respectfully submitted.

C. B. HUNT,
Engineer of Bridges.

The ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA,
(Through Capt. G. J. Fiebeger, Corps of Engineers, U. S. Army.)

List of inspectors and other temporary employés other than workmen.

Name.	Rate per month.	Construction and repair of bridges.		Ordinary care of bridges.		Deposit Metropolitan R. R. Co.	
		Time.	Amount.	Time.	Amount.	Time.	Amount.
		Days.	*Days.*	*Days.*	*Days.*	*Days.*	*Days.*
C. B. Hunt	$150.00	(1893) 2	$11.53	22	$125.20	2	$11.54
Do	175.00	60	399.18	60	397.12	3	20.19
R. D. McClure	100.00			286	1,100.00		
S. W. Conner	55.00			303	548.75		
E. J. Duvall	50.00			19	30.65		
C. H. Snyder	50.00			359	590.32		
W. T. Vanderslice	50.00			360	591.07		
E. Lucas	50.00			365	600.00		
A. V. Robey	50.00			209	342.56		
W. H. Hutcherson	50.00			46	81.67		
Jas. H. McClure	*3.00	(1893) 28½	84.75				
		(1894) 96⅝	286.87				
J. S. Simcox	*3.00					22½	67.50
Do	*4.00					16	64.00
J. R. King	*3.00	(1893) 13	39.00				
Justus Dunott	†1.70	‡33.9	57.63				
J. A. Colby							§150.00
Total		199⅞ / ‡33 9/10	878.96	2,029	4,407.34	43½	313.23

* Per day. † Per ton. ‡ Tons.
§ Total cost of mill and shop inspection on P-street bridge superstructure.

REPORT OF ENGINEER IN CHARGE OF SURVEYS

SIR: I have the honor to submit the following report of work in this department for the fiscal year ending June 30, 1894.

Operations have been mainly upon the preparation of plans for a "permanent system of highways" under the act of March, 1893. Surveys and plats have also been made to carry out the provisions of the act of 1888 whenever the recording of new subdivisions have rendered such necessary.

As the act on "highways" directed the plans to be prepared in sections, that part of the District above Florida avenue and between North Capitol street extended and Rock Creek was selected as the first section to be disposed of. This includes the most irregular group of subdivisions in the District; Le Droit Park, Meridian Hill, Mount Pleasant, etc., none of them conforming strictly to the city plan or laid out with regard to each other.

As an initial step a small scale map was made of the section, showing the present highways, together with proposed lines of new streets. For a thorough study, as well as for a final matter of record, large scale maps of the most irregular subdivisions, including all between Florida avenue and Spring road, were platted and lithographed. A considerable amount of field work was necessary in order to aid in the platting and to establish the true relations between the subdivisions and streets where records were lacking or doubtful. Upon these lithographs tentative plans were laid down and much detail study given to the location of the proposed streets.

After permanent locations had been decided upon new sheets were prepared for record. These show how all lots of the various subdivisions are affected by the new streets, the changed distances and areas being given in each lot. Several thousand lots have been included in whole or in part by the "permanent lines," which has involved a great amount of calculation. In unsubdivided or agricultural parts all block distances are shown without reference to property lines.

This section is spread upon forty maps each 20 by 36 inches in size. All subdivisions, including parts lithographed, were drawn to a scale of 1 inch to 100 feet. For the unsubdivided portions 1 inch to 200 feet was found sufficient.

These maps have yet to be submitted to the Commission for alterations or approval. Before being delivered for record the maps are to be bound in volume with index, and all necessary explanations.

Considerable work has been done on a "system" for the suburban parts of the northeast, which has been taken up as the second section. Its solution is an easy one when compared with the first section, and should be finished within the present year.

Street naming and block numbering is a matter that should be decided upon as soon as the first section has been recorded, and I would suggest that the best system of street nomenclature is that ordered by the Commissioners under the "subdivision act of 1888." Numerous discussions and printed articles have appeared on this subject, but I have not seen any improvement on the present system.

Suggestions have been offered from time to time of a plan for doing away with the naming of subdivisions and the multiplying of block numbers. There are over seventy subdivisions, each containing blocks numbered 1, 2, 3, etc. Continuous block numbering could be applied to the first section with good results, and I suggest the following method for [illegible] somewhat after the city system of starting at Boundary [illegible] in two directions from it: First, start at Florida avenue between North Capitol and First streets west, with the number 1200, running north with consecutive numbers to the District line. Then again, at Florida avenue between First and [illegible] streets the numbers running north as before.

Under the law of 1888 [illegible] subdivisions have been laid out upon lines given by this office, and have been recorded.

Detail surveys have been made and plats prepared for the donation of Nebraska, Massachusetts, and Rhode Island avenues.

Barry farm.—This subdivision is the most irregular and the most troublesome in the District, and before it can be made to accord with any system considerable field work will be necessary for establishing the present recorded street lines. The subdivision seems to have been first platted and surveyed inaccurately, and many points have been lost, while some recent surveys have added to the confusion. As this land was subdivided and sold by Government officials, I recommend that $2,000 be asked for to straighten matters out.

Very respectfully,

WM. P. RICHARDS,
Assistant Engineer.

Capt. CHARLES F. POWELL,
Engineer Commissioner, District of Columbia.
(Through Capt. G. J. Fiebeger.)

List of employés under "permanent system of highways."

Name.	Service.	Time.	Rate per day.	
		Days.		
Wm. P. Richards	Assistant engineer	297	*$175.00	$2,100.00
Thos. C. J. Baily, jr	Draftsman	294	4.00	1,176.00
Stanislas Slonecki	....do	¼	4.00	136.00
Geo. I. Bradley	....do	149½	4.00	598.00
M. C. Hazen	Transitman	296	4.00	1,184.00
Wm. I. Boyd	Rodman	300	*60.00	689.97
A. S. Fernald	Axman	306	2.00	612.00
Thos. Sweeney	Driver	196	1.50	294.00
Total				6,789.97

* Per month.

REPORT OF THE PARKING COMMISSION.

WASHINGTON, D. C., *July 25, 1894.*

GENTLEMEN: The parking commission have the honor to submit the accompanying paper of the superintendent of parking as their report for year ending June 30, 1894.

JOHN SAUL.
WILLIAM SAUNDERS.

U. S. BOTANIC GARDENS.

Approved as to facts, but not as to the opinions.

WM. R. SMITH.

The Hon. COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., *July 1, 1894.*

SIR: I have the honor to submit the following statement of work performed under the supervision of this office during the fiscal year ended June 30, 1894:

Six hundred and ninety trees were planted on the streets, consisting of elms, Oriental planes, lindens, Norway, sugar, and silver maples, gingkos, and oaks. The decrease in the number planted as compared with that of the previous year is due to the large amount of necessary trimming which was done and the improving of circles and street parkings hereinafter mentioned. In this connection I would state that, in addition to trimming individual trees and rows of trees which needed special attention, all that section of the city between North Capitol street and Rock Creek and B and M streets NW. was taken systematically and the trees trimmed. In doing this work hundreds of loads of brush were cut off and carted to the dumps, and when it had accumulated to such an extent as to render the deposit of more impossible it was burned in order to give more room.

The dumping of brush close to houses is always avoided because of the danger of its being set on fire by thoughtless persons, whereby valuable property might be destroyed; hence the dumping grounds for brush have narrowed down to Twenty-first street between Virginia avenue and the reclaimed land for the northwestern section of the city, and Tenth street near the Baltimore and Ohio Railroad tracks for the eastern section. This renders it necessary to cart the larger part of the tree trimmings long distances, which, considering the quantity to be moved, is an expensive item alone. The entire annual appropriation, which for years has been $18,000, would be required to properly trim trees and replace dead and inferior ones to keep up the rows already established

The parkings in the center of Pennsylvania avenue, between Second and Eighth streets SE., and New York avenue, between Tenth and Thirteenth streets NW., were graded, soiled, seeded in grass, and a temporary fence of wire and stakes was erected for protection. Sheridan Circle at Massachusetts avenue and R street, the two semicircles at Sixteenth and U streets NW., and Truxton Circle at intersection of Florida avenue and North Capitol street were prepared and sown in grass. These parkings and circles presented a very good appearance until the very dry weather set in, except on New York avenue, where the elm roots are so close to the top of the ground and which so cover the same that I doubt if a good turf can ever be pro-

duced there. If it were not for the fact that the parking is already considerably elevated above the level of the street, a few inches of good soil might be added, which would remedy the matter, but to lower the parking would be death to the fine elms.

Two thousand four hundred seedlings, of varieties adopted here as the best street trees, have been planted in nursery rows, and seeds of the Oriental plane, gingko, Norway, sugar, and silver maples, elms, and other varieties were gathered and sown, and there is an abundant supply of these plants on hand.

All the trees planted on the streets during the last nine years were grown in the nursery, except about one dozen of a special variety and a few seedlings which were obtained from Northern nurseries and which cost in all not more than $30.

There are about 6,000 fine young trees in the nursery of suitable size for street planting, but many of these will be too large unless they can soon be used.

Four hundred and sixty-one trees which had become objectionable for various reasons were removed from the streets. One hundred and fifty-eight of these were Carolina poplars which stood with the elms on East Capitol street. The roots of these trees have disturbed the sidewalks every year for the last nine years, although to my certain knowledge they have been pruned and the brick smoothly relaid every year, and now that the trees are out, the roots left are throwing up sprouts. The work of removing them and relaying brick is still going on, at considerable expense, and for this reason I would recommend that throughout the city the planting of these trees be abandoned, as there are a number of varieties of trees equally suitable for shade to which this objectionable feature is not attached. The underground leakage of gas has been a prominent factor in causing the death of some of said trees, which rendered their removal necessary, about 100 having died from this cause.

Three hundred and fifty old wooden tree boxes were removed. The entire stock of old box lumber, which for the last six or eight years has supplied material for second-hand tree boxes, has been exhausted and new lumber must be purchased for the making of boxes for future use. One thousand wooden tree boxes were made and used around newly planted trees and those of a few years' growth.

One thousand five hundred rods of woven wire were purchased; but owing to the scarcity of money only about 1,200 rods were used, with which 4,341 trees were protected. The average cost of wire and wiring each tree is about 46 cents; but the work of readjusting wires which have become tight, and the taking off of injured wires, etc., is very expensive work, and requires constant attention.

Caterpillars appeared in small numbers only, and their removal cost but little.

The pruning of tree roots where they had disturbed the sidewalks and the relaying of the bricks has been carried on. This work requires thought and care, and is of such a nature that no fixed rule can be followed in its execution, as relief should be given the sidewalks as far as possible and at the same time the trees should not be injured or rendered liable to destruction. I think this work should be continued, as it is a constant source of complaint. All that part of the northwestern section of the city between North Capitol and Twenty second streets and B and Florida avenue has been gone over and the condition improved; but tree roots grow rapidly, and before the city is gotten over with our limited force it will be necessary to start again over the same ground at the same work.

Storms were of frequent occurrence, and the cleaning of wreckage from the streets was an item of considerable expense.

The work of the parking commission is widely scattered, and during the year 695 communications were received through the office of the Commissioners of the District of Columbia, inspections and reports were made on the same, and the necessary work done. The police department reported more than 2,000 localities where trees, boxes, etc., were in need of special attention. The majority of these needed examination to enable the issuing of proper orders; and together with the many other matters to be attended to, scattered over so wide an area, required the constant use of a horse and wagon, and the work could not have been intelligently directed without a personal inspection in nearly every instance. This department is not properly equipped for the work in hand, nor is the annual appropriation sufficient to conduct the work in a proper manner.

As has been before reported, there is great need for the removal of trees at the corners of streets and in other places where they intercept the light from the street lamps. Some of these have already been removed, but not enough to abate the nuisance

The report of the parking commission for last year shows—

Total number of trees on the streets	73,833
Number of trees planted during the year	690
	74,523
Number of trees removed	461
Total number of trees now on streets	74,062

Number of trees protected by wire previous to year just ended	22,122
Number of trees wired during the year	4,341
	26,463

Appropriation for 1894		$18,000.00
Expended for labor, cart hire, etc	$14,164.15	
Material (wire netting, tree stakes, forage)	3,832.11	
		17,996.26
Unexpended balance		3.74

The following table shows the amounts paid the foremen in this department from the various appropriations during the year just ended:

Appropriation.	T. Culhane.	J. B. Devan.	John Dunn.	Henry Fuller.
Parking commission	$649.00	$494.47	$521.25	$483.10
Emergency fund	21.75	26.87	51.24	41.24
Grading Sixteenth street extended	13.50			2.50
Georgetown schedule				15.00
Northeast schedule				2.50
Total	684.25	521.34	572.49	544.34

Estimates for 1895.

Purchase of wire netting and wiring of trees	$5,000
Trimming and care of trees on streets and parkings	12,000
Planting of trees on streets and work at nursery	6,000
Purchase of lumber for boxes	1,500
Making tree boxes and repairs to tools	1,400
Purchase of tree stakes	600
Improving and fencing the 36 reservations under control of the honorable Commissioners	10,000
Total	36,500

Very respectfully,

TRUEMAN LANHAM,
Superintendent Parking Commission.

The ENGINEER COMMISSIONER DISTRICT OF COLUMBIA.
(Through Capt. G. J. Fiebeger.)

REPORT OF SUPERINTENDENT OF PROPERTY.

OFFICE OF THE ENGINEER COMMISSIONER,
DISTRICT OF COLUMBIA,
Washington, September 21, 1894.

SIR: I have the honor to submit the annexed report showing the purchase of construction materials on account of appropriations for 1893–'94, also a list of the employés of the property division and the amounts paid to each.

I respectfully renew my recommendation for an appropriation for keeping the various property yards in order, fencing the two most important yards, and the erection of a platform scale at the District cement house. Eight hundred dollars is requested for these purposes.

Fences are particularly needed at the property yards situated at Second and I streets SE. and Second and H streets NE. Material which can be easily broken is stored here in large quantities, much of which is damaged by the boys who congregate there in the evenings. The services of a watchman would cost more than the value of the material destroyed, so fencing seems to be the most economical and satisfactory solution of the difficulty.

The District cement house is used for the storage of the cement used in the various public works. In order to ascertain whether the barrels contain the stipulated quantity it is often necessary to employ additional laborers to handle and weigh each barrel. This expenditure could be saved by the erection of a platform scale at a cost of $175. As the District uses between 30,000 and 40,000 barrels a year it can be readily seen that such a scale would soon pay for itself.

A small fund is much needed for keeping in repair the fences, offices, sheds, roads, etc., of the various property yards.

The $800 recommended for the above purposes should be divided as follows:

Fencing two yards	$400
Erection of platform scale at District cement house	175
Repair of offices, fences, roadways, etc	225

The present appropriation ($300) for the rent of property yards is now expended for the rental of one yard, all others being occupied without expense. An increase of this appropriation to $600, to cover any emergency which may arise, is respectfully recommended.

Respectfully submitted.

L. T. BOISEAU,
Superintendent of Property.

The ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA,
(Through Capt. G. J. Fiebeger, Assistant.)

Statement of construction materials purchased on account of fiscal year 1893–'94.

Appropriation.	Granite curbing.		Granite blocks.		Vitrified paving bricks.		Vitrified sewer bricks.	
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.
	Feet.		*Number.*		*Number.*		*Number.*	
Work on streets and avenues	8,992.49	$8,308.57	473,314	$23,111.96	445,027	$7,934.84	.....	.....
Permit work	2,063.66	1,743.87	15,507	790.86	1,845,398	32,903.45	27,275	$462.31
Current repairs to streets, etc	297.75	346.58	74,852	3,408.34	45,860	817.68	.....	.....
Repairs to county roads	.....	.....	18,488	512.91	.....	.....	.....	.....
Constructing county roads	75.36	107.76	136,061	6,665.09	.....	.....	.....	.....
Repairs to concrete pavements	179.63	253.44	.....	.....	[2] 93,890	1,799.22	.....	.....
Main and pipe sewers	.....	.....	.....	.....	.....	.....	106,304	1,791.03
Suburban sewers	.....	.....	.....	.....	.....	.....	176,816	2,980.83
Relief sewers and replacing obstructed sewers	.....	.....	.....	.....	.....	.....	500	8.48
Main intercepting sewer [1]	.....	.....	.....	.....	.....	.....	174,942	2,965.27
Pumping expenses, etc., water department	.....	.....	.....	.....	800	14.26	.....	.....
Schools	259.42	260.97	.....	.....	.....	.....	.....	.....
Plumbers' assessment fund	.....	.....	.....	.....	160	2.85	.....	.....
Deposits (various)	132.62	149.39	9,900	485.10	6,886	102.49	.....	.....
Total	12,000.93	11,170.58	728,122	34,974.26	2,438,021	43,574.79	485,837	8,207.92

[1] Appropriations for 1892–'93. [2] Includes 22,073 vitrified paving blocks.

Statement of construction materials purchased, etc.—Continued.

Appropriation.	Red paving bricks.		Red sewer bricks.		Asphalt blocks.		Invert blocks.	
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.
Work on streets and avenues	*Number.* 206,437	$1,961.14	*Number.* 11,900	$89.29	*Number.*		*Feet.*	
Permit work	974,014	9,164.41	189,900	1,435.23	168,039	$10,838.51	304½	$182.70
Current repairs to streets, etc	25,495	242.21	4,700	34.01	11,939	771.44		
Repairs to county roads	8,500	80.75						
Constructing county roads	107,000	1,016.50						
Bridges			19,700	189.44				
Repairs to concrete pavements			17,300	129.36				
Main and pipe sewers	[1] 5,700	47.13	232,058	1,706.36			7,742	[2] 4,521.45
Suburban sewers			110,949	887.31			5,822½	3,480.03
Relief sewers and replacing obstructed sewers	1,000	9.50	71,850	527.04				
Cleaning and repairing sewers and basins	600	5.70	67,700	515.66				
Automatic siphons for flushing sewers			1,000	8.13				
Schools	11,807	112.17						
Plumbers' assessment fund					500	32.25		
Deposits (various)	1,194	11.35	11,000	81.55	2,415	156.52		
Total	1,341,747	12,650.86	738,057	5,603.38	182,893	11,798.72	13,869	8,184.18

Appropriation.	Sewer pipe, branches, etc.		Cement.		Sand.		Pebbles.	
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.
Work on streets and avenues	*Feet.* 225	$18.75	*Barrels.* 61	$84.40	*Cu. yds.* 134½	$64.70	*Cu. yds.* 20½	$17.29
Permit work	39,444	8,475.77	7,890 5/12	8,180.79	5,230 1/12	2,491.80	2,054⅛	1,749.99
Current repairs to streets, etc	237	27.72	769 1/12	744.02	1,008⅜	476.06	101⅛	86.27
Repairs to county roads	347	78.05	11	12.54	40	18.80	12	10.20
Constructing county roads					56	26.32	9⅛	7.93
Bridges	9	4.86	137	165.99	6	4.12	4	3.40
Repairs to concrete pavements	291	31.80	373	347.49	77	38.11	10	8.50
Main and pipe sewers	38,522	[2] 11,180.95	7,665⅛	8,807.30	927 1/12	[2] 487.97	1,811⅛	1,539.92
Suburban sewers	10,817	[2] 3,546.46	5,831	7,407.94	519⅛	271.54	599⅛	510.05
Relief sewers and replacing obstructed sewers	34,424	13,266.55	5,439⅛	5,412.02	355	[2] 192.12	1,189⅛	1,010.93
Cleaning and repairing sewers and basins	1,788	[2] 208.38	874⅛	1,007.06	198⅛	115.82	120	102.00
Automatic siphons for flushing sewers	83	17.09	250	600.00	80⅛	38.99	32	27.20
Main intercepting sewer [3]			6,078⅛	[2] 7,138.83				
Pumping expenses, etc., water department			280 5/12	281.78	123⅜	58.13	15⅛	13.57
Extension of high service, water department	9	4.86	157	178.83	82⅜	39.09	11⅛	9.91
Repairs to engine house			10	20.22				
Schools					27	12.69		
Industrial Home School	1,875	160.94	89	74.76				
Plumbers' assessment fund			698⅜	660.29	290 4/10	136.48	13	11.05
Deposits (various)	836	124.74	570½	573.96	271⅛	128.82	52⅛	44.74
Total	128,907	37,146.92	37,185⅛	41,698.22	9,427 1/12	4,601.56	6,055⅛	5,152.95

[1] *Used as sewer bricks.* [2] Deliveries incomplete. [3] Appropriation for 1892-'93.

Statement of construction materials purchased, etc.—Continued.

Appropriation.	Broken stone.		Rubble stone.		Bluestone traps, tops, etc.		Lumber.	
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.
Work on streets and avenues	*Cu. yds.*		*Cu. yds.*		*No.*		*Ft., B. M.* 108	$1.48
Permit work							49,901	697.70
Current repairs to streets, etc	4	$6.00					1,648	22.18
Repairs to county roads	950⅛	730.38					14,106	293.20
Constructing county roads	80 7/12	140.85						
Bridges	8	22.00					187,800	[1] 4,249.68
Repairs to concrete pavements					3	$48.00	48	2.50
Main and pipe sewers	1 7/12	2.73			[2] 46	748.50	20,101	[3] 369.16
Suburban sewers					19	307.00	17,312	[4] 363.29
Relief sewers and replacing obstructed sewers							3,895	62.72
Cleaning and repairing sewers and basins			176.2	$130.26	9	147.00	9,766	[5] 195.59
Automatic siphons for flushing sewers							848	32.32
Deposits (various)					1	16.00	480	11.04
Total	1,044⅛	901.96	176.2	130.26	78	1,266.50	306,013	6,300.86

[1] Includes 6 cedar posts.
[2] Includes extra check blocks and lip stone.
[3] Includes 4,500 stakes.
[4] Includes 3,000 stakes.
[5] Includes 5 cedar posts.

Statement of construction materials purchased, etc.—Continued.

Appropriation.	Pitch.		Castings, manhole frames, grates, etc.			Hauling.	Services.	Rent of property yards.	Total.
	Quantity.	Cost.	Castings.	Manhole irons.	Cost.				
	Gallons.		*No.*	*No.*					
Work on streets and avenues	400	$31.00	.....	.....	[1] $587.5	$254.49	$2,552.33	.....	$45,023.74
Permit work	1,142	85.66	404	1,149	[2] 1,275.59	.....	3,300.55	.....	83,8.1.19
Current repairs to streets, etc	6,036½	371.08	1	.....	5.34	.....	106.50	.....	7,465.43
Repairs to county roads	1,950	151.13	.....	.....	[3] 12.57	.....	.....	.....	1,900.53
Constructing county roads	950	73.63	.....	.....	.....	160.50	.....	.....	8,198.58
Bridges	.....	.....	.....	.....	.....	.....	65.00	.....	4,704.49
Repairs to concrete pavements	.....	.....	11	.....	41.01	.....	.....	.....	2,699.43
Main and pipe sewers	65	4.88	627	1,100	2,066.93	.....	1,143.95	.....	34,418.26
Suburban sewers	.....	.....	203	279	554.66	.....	759.15	.....	21,068.26
Relief sewers and replacing obstructed sewers	.....	.....	244	850	785.56	.....	696.80	.....	21,971.72
Cleaning and repairing sewers and basins	.....	.....	150	80	527.42	.....	415.22	.....	3,370.11
Automatic siphons for flushing sewers	.....	.....	50	27	137.10	.....	.....	.....	860.83
Main intercepting sewer [4]	.....	.....	18	.....	127.47	.....	.....	.....	10,231.57
Pumping expenses, etc., water department	1,628½	130.38	2	.....	5.39	.....	.....	.....	503.51
Extension of high service, water department	483	35.23	.....	.....	.....	.....	.....	.....	267.92
Repairs to engine houses	.....	.....	.....	.....	.....	.....	.....	.....	20.22
Schools	.....	.....	.....	.....	.....	.....	.....	.....	385.89
Industrial Home School	.....	.....	.....	.....	.....	.....	.....	.....	235.70
Rent of property yard	.....	.....	.....	.....	.....	.....	.....	$300.00	300.00
Plumbers' assessment fund	1,124	83.42	.....	.....	.....	.....	.....	.....	926.34
Deposits (various)	6,336	517.76	29	51	86.68	.....	.....	.....	2,410.14
Total	20,115	1,484.17	1,739	3,556	6,213.22	414.99	9,039.50	300.00	250,843.80

[1] Includes 852 feet 12-inch cast-iron pipe.
[2] Includes street washer and fittings.
[3] Includes 36 feet 12-inch cast iron pipe.
[4] Appropriation for 1892–'93.

List of employés of property division.

Name.	Designation.	Rate.	Permit work.		Current repairs, streets, avenues, and alleys.		Ordinary care of bridges.		Sewers.		Work on streets and avenues.		Total.	
			Days.	Amount received.	Days.	Amount received.	Days.	Amount received.	Days.	Amount received.	Days.	Amount received.	Days.	Amount received.
L. T. Boiseau	Superintendent of property.	$4.75	128	$608.00					95½	$453.62	78½	$372.88	302	$1,434.50
J. E. Payne	Clerk	3.50	124	434.00					98½	344.75	67½	236.25	290	1,015.00
W. J. W. Grey	do	3.00	140.6	421.80					62	186.00	100.9	302.70	303½	910.50
William Donaldson	Inspector	4.00	176	704.00					105	420.00	32	128.00	313	1,252.00
C. Donaldson	do	2.50							47	117.50	41	102.50	88	220.00
W. H. Voss	Inspector and storekeeper	3.00	127	381.00					132	396.00	52	156.00	311	933.00
H. M. Dickinson	do	3.00	129	387.00					132	396.00	52	156.00	313	939.00
C. Bailey	do	2.50							26	65.00	89	222.50	115	287.50
J. P. Jennings	Storekeeper	2.50	102	255.00	27	$67.50	26	$65.00	58	145.00	16	40.00	229	572.50
W. R. Lapham	do	2.50									64	160.00	64	160.00
E. Morris	Messenger and storekeeper	1.50 2.50	12	18.00	26	39.00			64½	156.25	79	197.50	181½	410.75
William Smith	Subinspector	2.50									68	170.00	68	170.00
G. W. Stoddard	do	2.50									24	60.00	24	60.00
A. Miller	do	2.50	9	22.50									9	22.50
W. S. Hancock	Inspector	3.00 3.25	19	60.25					98	318.50	73	225.50	190	604.25
M. A. Penn	Clerk	3.00									5½	16.50	5½	16.50
F. W. Miller	Laborer	1.50	4	6.00							4	6.00	8	12.00
R. L. Swart	do	1.50							8	12.00			8	12.00
P. Moriarty	do	1.50							3	4.50			3	4.50
T. Flaherty	do	1.50	2	3.00									2	3.00
Total			967.6	3,300.55	53	106.50	26	65.00	929½	3,015.12	846.4	2,552.33	2,822½	9,039.50

REPORT OF GENERAL INSPECTOR.

WASHINGTON, D. C., *September 25, 1894.*

SIR: I have the honor to submit report of the operations of this office for the fiscal year ending June 30, 1894.

Prior to the fiscal year ending June 30, 1893, it was not required of this office to render an annual report; and, owing to the absence of systematic effort in the way of preserving data previous to the date instructions were received directing the preparation of an annual report for that year, it was found impracticable to prepare more than a general statement of work performed in that year.

During the fiscal year ending June 30, 1894, however, notwithstanding the varied nature of the work coming under the jurisdiction of this office, and the difficulty of reducing it to record form, I have been enabled to keep a record of many matters that heretofore have received no consideration as composing the data for the preparation of an annual report, and of all such as have required examination and written report.

I may say, therefore, in submitting my report for this year, that I am prepared to enter more into detail.

The assignment of duties for the year was as follows:

The supervision of street and steam railroads to the District line, involving examinations from time to time looking to the maintenance of the tracks in the way of grade adjustment, and repairs to pavements, the repair and protection of crossings at street and road intersections as a provision for the safety and convenience of travel, as well as the general protection of steam tracks within the city in the way of fencing, etc.

The supervision of telegraph, telephone, and electric light overhead lines, and underground conduits, and of gas mains,* involving the selection of routes, the designation of points for the erection and transplanting of poles, the stringing of wires, and the location and construction of conduits.

The investigation of claims and damage suits against the District, the examination and report upon communications and complaints, and the inspection of sidewalks where subjected to injury on account of building operations.

Under these different heads much good work has been accomplished during the course of the year. Notably under the head of railroads may be mentioned as having occupied the attention of this office, "the extensions of the Eckington and Soldiers' Home Railroad, as provided for in public act No. 99, approved July 5, 1892."

This work was gotten thoroughly under way about the middle of the year, and the close of the year found it rapidly pushing toward completion, with the result that, in point of track construction and equipment, the completed portion is one of the most substantial roads that has ever been built in the District. The rail used on these extensions is especially to be commended. It possesses qualities of weight and depth in excess of any that have hitherto been used in railway construction in the District, and in the light of past experience these are deemed to be advantages, tending to the improvement of the surface conditions of streets in which rails having these qualities may be laid, the heavier rail as tending to the preservation of a more uniform track surface, and the deeper rail to the attainment of better results in the way of railway-track paving.

The rail is the Johnson Company's pattern No. 216, having a depth of 8 inches and weighing 95 pounds to the yard.

It has been demonstrated that the light-weight rail generally in use is illy adapted to withstand the pounding incident to the running of cars, and especially is this so with respect to the roads employing modern systems of propulsion, where the weight of cars is necessarily increased, striking examples of the effect of which may be seen on many of the roads in the way of low and loose joints.

The rail of insufficient depth has been found lacking in that it does not admit of paving between rails and tracks with any degree of satisfaction and permanency, at least without the utmost care being used in selecting and fitting stone, and as this character of work can not be subject to constant inspection, it necessarily follows that much of it is not as good as could be desired, the main objection being the rough and ridgy shape which the pavement takes after the work has had time to settle, being due in great measure to the necessity of the cross-ties being so near the surface. Notwithstanding these disadvantages, however, the street-railroad companies during the past year, having given more constant attention to paving and track surfacing, attained a high standard of repairs, as a result of which there exist better conditions of maintenance than ever before, and I may say that there has been no instance coming under my observation where there has not been the most

* This *office was relieved of* the supervision of gas maines in January, 1894.

willing compliance on the part of all the roads with the orders of the Commissioners in respect of such matters.

The substitution of the standard grooved rail for the old pattern rail has now been effected, except upon those lines contemplating a change of motive power in the near future.

The progressive policy of the Commissioners regarding the protection of the steam railroad tracks has had a wholesome effect, and although there is no immediate prospect of getting rid of the threatening dangers of the grade crossing, yet there is the encouraging hope that the authorities of both the great railroad systems have awakened to the necessity of protecting these tracks, as is commensurate with the danger attending their existence.

Improvements have been made throughout the lines of both roads as far as the District line, in the way of additional protective appliances, and with the erection of two or more additional alarm signals, which the safety of travel seems to suggest at points beyond the city limits, and the fencing of the unfenced portion of the tracks within the city, it is believed, the dangers incident to the thus far enforced tolerance of steam surface tracks will have been reduced to a minimum.

The crossings of the Baltimore and Potomac road are kept up to a high standard of maintenance, and all within the city are equipped with safety gates, manned proportionably as the requirements of safety and travel seem to demand. The crossings of the Baltimore and Ohio road are correspondingly well equipped, but their standard of maintenance is not so high, nor has there been the same effort at compliance on the part of this company with the orders of the Commissioners relating to this feature of their crossings.

OVERHEAD LINES AND CONDUITS.

In addition to those owned and operated by the General and District governments in the District, the following private corporations own and operate overhead lines and conduits, or both: The Western Union Telegraph Company, Rapid Transit Telegraph Company,* Postal Telegraph Company, Chesapeake and Potomac Telephone Company, Baltimore and Potomac Railroad Company, Baltimore and Ohio Railroad Company United States Electric Lighting Company.

These companies each have their own separate pole lines and conduits, the most extensive overhead systems being owned by the Western Union Telegraph Company, the Chesapeake and Potomac Telephone Company, the Postal Telegraph Company, and the United States Electric Lighting Company, while the underground systems, aside from those of the General and District governments, are owned by the United States Electric Lighting Company, the Chesapeake and Potomac Telephone Company, the Western Union Telegraph Company, the Postal Telegraph Company, those of the United States Electric Lighting Company and the Chesapeake and Potomac Telephone Company being the most extensive.

There was practically no conduit construction by any of these companies during the past year. They were engaged mostly in renewing their overhead lines, replacing old with new and stronger poles, and substituting copper for iron wires, where use had rendered dispensing with the latter necessary

The Chesapeake and Potomac Telephone Company and the Western Union Telegraph Company, in compliance with orders of the Commissioners, have marked their poles with their respectives names, and as the designation of poles in this way greatly facilitates the work of inspection, it is hoped that it will be insisted upon in regard to the other companies.

The United States Electric Lighting Company have not complied with the orders of the Commissioners directing the removal of the line of poles from Fifteenth street NW., between F and I streets, nor of the overhead wires across Seventh street NW., between G street and Florida avenue.

The overhead lines, upon the whole, may be said to be in a fair state of maintenance, with the exception of the Rapid Transit, which is practically an abandoned line and should be removed from the streets entirely.

The standard of maintenance kept up by the Chesapeake and Potomac Telephone Company is exceptionally good, their pole and wire equipment is of the best, and their work is expedited in the most satisfactory manner.

The supervision of this branch of work, in consideration of existing law, and the policy of the department affecting it, requires the exercise of both watchful care and thoughtful study, involving much detail of execution.

The plan of operations, as shaped by these considerations, has been to guard against any possible violations of law, and when the erection of poles has been found necessary, to so locate them as to interfere the least with public or private interests, and at the same time secure the objects of such necessity, or, if there are a

* *The Rapid Transit* Telegraph Company is controlled by the Western Union.

number of poles belonging to a single company or to different companies, the aim being to secure the free and unobstructed use of as much of street, road, or alley as possible, the least number of poles are made to carry the greatest number of wires, and if it can be satisfactorily arranged the lines are made to combine, all of which is suggestive of the feasibility of the single-pole system of overhead-wire service.

When, however, the proposed poles were on the line of conduits, and it was found they could be dispensed with, it has been the practice to encourage the utilization of the conduits.

Advances have been made during the year, the outcome of recommendations from this office, tending to the improvement of the distribution service from conduits. The companies are now extending their branch conduits well into the interior of squares, which is deemed especially advantageous in that it will admit of accommodating the smaller squares by the erection of a single pole, or of two poles at most.

Recent legislation authorizing the erection of telephone poles in alleys ought to simplify matters respecting the overhead system of the Telephone Company, and ultimately result in the removal of many of their poles from the public streets, though it is but just to state that the poles of this company would already have been removed from certain streets that are provided with conduits had they not been occupied by District wires.

CLAIMS AND DAMAGES SUITS.

Under this head, in addition to the time occupied in investigation, considerable time was consumed in attendance upon the trial of causes.

Investigations of this kind are sometimes unavoidably prolonged on account of the difficulty encountered from various causes in collecting facts, and when this is the case the evidence may be said in a sense to be permitted to develop itself, no ill effects resulting from the apparent delay, however.

The mode of investigation is always open and above board, and as the object is to ascertain the truth and the facts as having a bearing on the points at issue, or that may come to issue, there is consequently no undue advantage taken in the process of taking evidence.

In the adjustment of claims that may be settled out of court the conclusions arrived at are invariably the result of honest investigation and an equitable consideration of all the circumstances.

The District has been exceedingly fortunate during the past year in having had successful verdicts in its causes at bar, where it has devolved upon this office to investigate the facts, as well as in the settlement of claims out of court. In the former case, when the verdict has not been wholly in favor of the District, it has been for greatly reduced damages with a fair chance of success on appeal, while in the latter case, when the facts have been found to justify a claim, their equitable adjustment has invariably reduced the damages claimed.

There were 316 applications for inspections of sidewalks inspected during the year, averaging from 1 to 3 inspections each.

Appended is a list * of communications acted upon during the year, showing, in addition to the work of general supervision, those of a particular character occupying the attention of the office.

The force employed and compensation received per annum is as follows:

E. Y. Beggs, general inspector	$1,200
E. P. Hickey, inspector	1,200
L. P. Bradshaw, inspector	1,200

In conclusion, I desire to thank those associated with me as assistants for the faithful and efficient support they have given me in the conduct of the business of the office.

Very respectfully,

E. Y. BEGGS,
General Inspector.

Capt. CHAS. F. POWELL,
Engineer Commissioner, District of Columbia.

* Omitted.

REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS.

OFFICE OF THE ENGINEER COMMISSIONER,
Washington, D. C., September 5, 1894.

SIR: I have the honor of submitting my first annual report of the work performed in this department for the past fiscal year.

As my term of office did not begin until April 1, 1894, this report will lack the detail and conclusion which might be drawn from the work and will simply be a summing up of the different classes of work performed.

The work may be classified as follows:

	Number inspected.	
Hydraulic cements:		
Natural: Brands, 7; lots, 359; samples	3,704	
Portland: Brands, 17; lots, 72; samples	394	
		4,098
Stone, gravel, and mortars		15
Asphalts:		
Crude Trinidad, cargoes	10	
Refined asphalts	14	
Oiled asphalts, asphalt cements	17	
Surface mixture	83	
Asphalt block	1	
Heavy petroleum oils, residuums	25	
Sand, limestone dust, etc	29	
Miscellaneous asphalts, etc	14	
		193
Waters:		
Wells, etc	119	
Aqueduct	17	
		136
Miscellaneous samples		17
		4,459

HYDRAULIC CEMENT.

The following table gives the number of lots and samples of each brand examined and the number and per cent of lots rejected.

The cement that has been rejected has failed, with only one or two exceptions, on the fineness and time of setting.

Brands.	Number of samples.	Number of lots.	Number of lots rejected.	Per cent of lots rejected.
Natural cements:				
Round Top	1,774	181	16	8.8
Cumberland	1,550	131	46	35.1
Cumberland and Potomac	362	32	3	9.4
Shepherdstown	9	9	1	11.1
Antietam	5	2	.....	.....
Union	3	3	2	66.6
Rosendale	1	1	0	0
Total natural cements	3,704	359	68	18.9
Portland cements:				
Germania	218	29	1	3.4
Porta	135	18	5	27.7
Moon	12	6	0	0
Nonpareil	12	3	1	33.3
Alpha	2	2	.....	.....
Alsen	2	2	1	50
Burham	2	2	2	100
English	2	2	1	50
Total Portland cements	385	64	11	17.5

Besides the above Portland brands one lot of each of the following were examined: Giant, Saylor, Horse Shoe, Condor, Heyne Bros., Red Star, Castle, Dyckerhoff, and *Schifferdecker.*

The following table gives the average tests of the principal brands of Natural and Portland cements for the past year:

Brand.	Residue on 100-inch mesh.	Initial set.	Tensile strength.					Per cent water.		Average temperature when tested.	
			Neat.			Two parts quartz.					
			1 day.	7 days.	28 days.	7 days.	28 days.	Neat.	Two parts quartz.	Water.	Air.
Natural cements:		*h. m.*									
Round Top	16.9	0 25	95.2	216	290	125	250	32	14	75	77
Cumberland	18.3	0 26	158	326	370	146	280	32	14	75	77
Cumberland and Potomac	19.2	0 26	126	297	.....	164	.....	32	14	75	77
Shepherdstown	16.	0 30	80	175	.....	100	.....	32	14	75	77
Union	8.	0 15	174	260	385	146	230	32	14	82	82
Rosendale	10.	0 45	76	150	400	52	300	30	14	81	84
						Three parts quartz.					
Portland cements:											
Germania	7.	3 05	342	684	810	193	220	20	9	75	77
Porta	12.	3 07	300	578	800	191	200	20	9	75	77
Moon	8.	2 30	333	607	.....	175	.....	20	9	75	77

ASPHALTS, ETC.

The inspection of asphalt for paving purposes has been carried on as heretofore. Each cargo of crude asphalt and tank car of residuum has been analyzed. Samples of refined asphalt, asphalt cement, and sand have been examined in the laboratory at different times When a street is being resurfaced or newly paved, one and sometimes two samples of mixture for top are taken each day at the paving yard and analyzed, to represent that day's work.

The temperature of the sand, asphalt cement, and top, as it is to be laid, is taken at intervals during the day.

Besides the above routine work, various tests and experiments have been made, comparing the relative values of asphalts, sands, and oils for paving purposes.

Sheet asphalt pavements.—The sheet asphalt pavements of Washington have shown a marked improvement of late years, and they are at present doing quite well, owing to the improvement of the materials in the asphalt cement and its manufacture. But by giving more attention to the grade of sand for use in the top I feel that better results can be obtained. There has been but little thought given to the grade of sand for use in asphalt paving, and the practical men who have given their attention to this subject have applied the same rules as regards sand for asphalt paving mixture that they apply to concrete—that is, a sand being sharp, clean quartz, has been considered all that was necessary. This comparison of asphaltic cement to lime and hydraulic cement is entirely wrong. The cementing in the first case is purely physical, and is due to the adhesion of the cement to the grains of sand, making a mixture in which the sand is embedded in a medium which always remains more or less plastic and elastic, and which allows the sand a movement without destroying the union; while in the case of lime cements, the cementing is a chemical combination between the silica and silicates of the sand, and the lime of the cement, making a rigid mixture in which the cement becomes nearly if not quite as hard and firm as the sand.

It can readily be seen that in the first case no attention need be given to the composition of the sand grains, provided they be strong. Attention, however, should be given to the mesh composition, so that the large voids of the coarse grains be filled with smaller grains whose voids should be filled with still finer material, thus making a sand with a minimum per cent of very small voids; while in the case of lime mortar much attention should be given to the composition of the sand grains, and it is considered better if there be but little very fine material in it. If such a sand as above described for asphalt be unobtainable, a fine sand is next preferable, and, I believe, the finer the better, provided there be enough coarse grains in it to prevent the pavement being slippery. The sand that has been used in Washington for the past few years is a sharp, hard, pure quartz, just the thing for a lime mortar, but poor for asphalt top, as it is what might be called a poorly balanced sand—that is, one that has a large per cent of coarse grain and a very low per cent of fine material to fill in these voids. A pavement made with such a sand would be likely to absorb more water, and were it made soft enough to withstand cracking in winter,

would probably roll in summer. This may be more readily seen by observing its mesh composition and comparing it with a good paving mixture sand.

	Washington sand.	Good paving sand.
Retained on:	*Per cent.*	*Per cent.*
20-inch mesh	4.8	10
40-inch mesh	42.2	30
60-inch mesh	33	15
80-inch mesh	10.6	12
100-inch mesh	4.1	10
Passing 100-inch mesh	5.3	23

Bermudez asphalt.—The first pavements laid with this new asphalt have now been down about a year. They are all in excellent condition, and on closest examination I have been unable to detect the slightest signs of disintegration even in places where the pavement has been covered with dirt and mud for months. Judging from this year's experience and the character of the asphalt, I feel that time will develop no new defects, and that it will prove, when properly worked, a superior asphalt for paving purposes.

Experimental pavement.—Last year an experimental piece of pavement was laid, and is doing such good service that it may be of interest to mention here. This pavement consists of binder stone, granolithic, and stone dust, cemented together with Bermudez asphalt cement. It was laid as a binder, in the usual way, on an old macadam pavement for base, thus making a sheet asphalt pavement with a wearing surface similar to the present binder. This piece has done so well that provision has been made in the specifications for the coming year for the laying of this pavement over old stone pavements.

Asphalt blocks.—Great improvement can be noticed in the asphalt block pavements, laid with blocks made with part crushed blue stone and part limestone. These are more durable, chip less, and wear more evenly than the old blocks, which were made entirely of limestone.

WATER.

The well waters examined may be localized as follows:

Locality.	Examined.	Condemned.	Per cent condemned.
Northwest	83	17	20.5
Northeast	7	4	57.1
Southwest	11	7	63.6
Southeast	7	3	42.9
Miscellaneous	11	(?)	.....

Of the 108 wells examined in the city, 28 per cent have proved suspicious or bad. The above analyses have been reported to the proper authorities and are on file in their office.

Aqueduct water.—Chemical analyses have been made of the city water supply, as heretofore, for the information of the water department.

Miscellaneous.—Under this head are included various analyses and experiments that could not be classed under the subjects mentioned.

Respectfully, yours,

A. W. Dow,
Inspector of Asphalt and Cements.

Capt. CHAS. F. POWELL, U. S. A.,
Engineer Commissioner, District of Columbia.
(Through Capt. G. J. Fiebeger.)

REPORTS ON BERMUDEZ ASPHALT.

OFFICE OF THE ENGINEER COMMISSIONER,
Washington, D. C., May 16, 1893.

SIR: I have the honor to forward herewith the schedule of bids and separate bids for laying sheet asphalt and asphalt block pavements, with reports of the inspector of asphalt and cements and the chemists of the Barber and Bermudez companies.

The lowest bidder for laying Trinidad asphalt pavements is the Barber Asphalt Paving Company, whose bid is about 6½ cents lower than it has been since 1884. Mr. Thomas is, however, the lowest bidder upon all streets, laying the 6-inch base pavement 8½ cents and the 4-inch base pavement 3½ cents cheaper than the Barber pavement. All other things being equal, the contract should be awarded to the latter company.

The specifications require that "bidders must present satisfactory evidence that they have been regularly engaged in the business of laying asphalt pavements which they propose to put down, or are reasonably familiar therewith, and that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for to the satisfaction of the Commissioners, and to begin upon July 1, 1893."

The Bermudez asphalt comes from a pitch lake in the province of Bermudez, Venezuela, said to belong to New York and Bermudez Company. I have heard several different stories about this lake, but as they were either from representatives of one or the other competing bidders and there is no way of verifying the conflicting statements, I have considered the source of supply as foreign to this report and having no direct bearing upon the subject; providing the company could show that it has sufficient material to carry out the work under their bid. For the latter purpose, I visited the works of the Bermudez Asphalt Company at South Amboy. The works consist of a large covered building, containing four stills for refining asphalt, a shed for storing the crude, and an office or testing room. At the time I was there the works were not in operation, nor was there any crude asphalt in stock. There was in barrels, near the works, a large supply of refined asphalt, which I was told amounted to several hundred tons, or enough to lay over 50,000 square yards of pavement. I had no reason to believe the statement was not correct. From different barrels I obtained samples of the refined asphalt, the refuse, and from a small pile some of the crude asphalt. These were brought to Washington and submitted to the inspector of asphalt and cements for test.

The only pavement which has been laid with this material was laid in Detroit last fall, about 16,000 square yards for the city and 8,000 for a railroad company upon Woodward avenue. By order of the Commissioners I visited this pavement early in the month and compared it with the Warren Scharf pavements of Trinidad asphalt, laid upon the same street at the same time. There was no marked difference between the two pavements; both were intact between the street railway and curb, and both were badly worn where the rails had settled. The effect was similar to that upon New York avenue in this city. There is no special expert upon the subject of asphalt pavements in Detroit, the contracts being given to the lowest bidder. At the last letting the Bermudez Company secured contracts for about 60,000 yards to be laid this year. The prices at that bidding were $2.48 for Bermudez and about $2.70 for Trinidad Lake per square yard. The plant with which these pavements are laid consists of two stills and heating apparatus and mixer, all very simple. Ten thousand dollars would be an outside figure of its cost, including cost of land.

Such a plant, I am satisfied, could be duplicated in sixty days at the outside, and I have no reason to doubt Mr. Gray's statement, attached to Prof. De Smedt's letter, that he can complete the plant in thirty days. Oils, sand, stone dust, etc., can be easily obtained in Washington. As to the supervision, Prof. De Smedt states in his letter that he will personally supervise the work at the works with Foreman Michael Pairo, whom I saw at South Amboy. Both men have had considerable experience in laying asphalt pavements, both in this city and elsewhere. With these men at the head I have no reason to doubt that a satisfactory gang of workmen can be secured for the other work. Asphalt paving is no longer a new industry; there are experienced men who can be hired in this city and elsewhere. I believe that the company has complied with the intention of the specifications as far as regards experiments and machinery. The specifications also require that "the asphalt shall be from the pitch lake of the island of Trinidad or any other deposits which may be proved to be equally suitable to the satisfaction of the Engineer Commissioner."

This is a matter about which there is much dispute and difference of opinion. It must be remembered that the Bermudez asphalt is a new product upon the market and there are few men who know much about it.

Prof. Richardson, inspector of asphalt and cements, has made several reports upon

the subject, which are herewith submitted. A brief summary of the points of contention are as follows:

The first report of Prof. Richardson, inspector of asphalt and cements, was made on June 2, 1892. He states that the refined Bermudez contains only 1 to 2 per cent impurity, while the Trinidad contains 37 per cent. As Bermudez must have approximately this amount added to it before it is used this is no disadvantage to the Trinidad. He also states that Bermudez only contains 1 per cent of organic impurity, while the Trinidad contains 6 to 8, which is an advantage to the former.

Prof. Bowen, of the Barber Asphalt Company, holds that the natural mixing of the impurities in the Trinidad is far superior and more thoroughly incorporated than the artificial mixing of the Bermudez, and also that the organic matter is no detriment to the Trinidad. He holds that this natural mixing is the secret of the good qualities of the Trinidad.

Prof. De Smedt holds that the artificial mixing can be done as thoroughly as the natural and with this advantage, that the impurities added, calcium carbonate, is not acted upon by water; that the soluble salts, naturally in the Trinidad are responsible for the rotting of pavements in gutters, as seen in this city. Prof. Bowen contends that this rotting is due to imperfect manipulation. Prof. Richardson states that Bermudez asphalt contains more light oils, volatile at a low temperature, than Trinidad, and is softer and more pliable and requires less residuum oil to produce a suitable cement. This latter, he says, is a desirable character, but at the same time, unless the asphalt is refined at a sufficient high temperature to remove the more volatile of these light oils, the cement produced would be changeable in penetration and consistency when heated in dipping or storage kettles. He found it necessary to add residuum, from time to time, during two days he was engaged in laying a piece of pavement with it. This would not occur with Trinidad.

Prof. Bowen contends that these volatile oils in the Bermudez are a distinct defect, and with lapse of time the pavements will harden and disintegrate. Prof. De Smedt holds, on the contrary, that they are no defects, but that he can, in the process of manufacture, produce cements of a uniform consistency and penetration, and that in large masses the results are very much more uniform and under control than in laboratory mixtures.

Prof. Richardson states that cylinders of both asphalt cements were made and immersed in water 40° F. and allowed to cool. The Trinidad could be bent, while the Bermudez snapped; also that the Trinidad adhered more tenaciously when dropped upon glass or wood. This, he claimed, was the most serious defect in the Bermudez asphalt. It softens too much at high temperatures and was too brittle at low ones, with loss of adhesion.

Prof. De Smedt claims that the defects of brittleness and adhesiveness would be overcome if the impurities were added to correspond to those in Trinidad. He made some experiments in the laboratory in the presence of Prof. Richardson, Prof. Bowen, and others, including myself, and, I think, established his claim. Prof. Richardson states, however, that all his cements had a penetration of 110° to 140°, while our cements penetrate but 77°. He considers the cement too soft to be used on the street. Prof. De Smedt states that he has laid a pavement with his cement, and can do so again. He does not hesitate to guarantee that he can give any penetration which may be deemed desirable by adjusting the mixture.

Prof. Richardson stated that he made a mixture of the Bermudez and laid it upon G street NW. The result seemed to be satisfactory. Briquettes made of the material and immersed in water at 40° seemed fairly high and comparable with the Trinidad. He also took briquettes at different temperatures and reports the Trinidad mixture a trifle superior at all temperatures, but not sufficiently so to be of importance, as it is quite possible the Bermudez mixture might be modified to equal it. Prof. De Smedt claims at least an equality if the mixtures are properly made.

Prof. Richardson's conclusions in his first report are—

Cements.

	Bermudez.		Trinidad.	
	Good.	Bad.	Good.	Bad.
Mineral matter	1		1	
Organic matter not bituminous	1			1
Residuum required	1			1
Susceptibility to temperature		1	1	
Adhesion at low temperature		1	1	
Tenacity		1	1	

If this conclusion be modified by the experiments by Prof. De Smedt the adhesion and tenacity would be placed nearly equal, and the points in favor of each would be—

For Trinidad: Susceptibility to temperature.

For Bermudez: Organic matter not bituminous, residuum required.

Prof. De Smedt contends that the two asphalts should be placed equal with respect to susceptibility to temperature. Prof. Richardson's conclusion was that it would be well to test the new asphalt on one heavily traveled street, as by this means it can alone be judged.

In his second report, made shortly afterwards, Prof. Richardson objected to using the proportion of carbonate of lime proposed by Prof. De Smedt, as it would make the pavement partake of the character of Neufchatel rock pavement, which is slippery. Judged from the Detroit pavements, I do not consider this objection important, as the Bermudez pavement was no more slippery than the Lake asphalt. Both, I believe, use about 75 per cent of sand in the composition.

He does not agree that there is any advantage in the limestone dust over the siliceous matter in the Trinidad. He thinks it would be for the interest of the District to allow a small experimental surface of Bermudez asphalt to be laid in the street where it will be subjected to travel. This, however, should be done at the expense of the company wishing to introduce it.

Prof. Richardson's third report was made in April, 1893. His conclusions are that, as regards mineral matter, the two are about equal. As regards the bituminous, there is no reason to believe that Bermudez is better or even as good as the Trinidad. He states that when the volatile oils are diven off, as they must more or less in refining, etc., the remaining bitumen approaches more or less the nature of glance pitch.

Prof. De Smedt denies that his asphalt does approach glance pitch in character, as glance pitch is not suitable for pavements.

Prof. Bowen informed me that a pavement could not be laid of glance pitch.

Prof. Richardson states that the only advantage he can see in Bermudez is that as it contains no soluble salts it might not in consequence rot in the gutters; that although less oil is used with Bermudez, more must be added from time to time in the dipping kettles, and it would be difficult to prepare a uniform surface mixture. Prof. De Smedt states that he had no trouble in Detroit in maintaining a uniform mixture, and will guarantee that he will do it here. Prof. Richardson does not think the difference in petroleum oil used is an advantage to the Bermudez asphalt, the true character depending within certain limits more entirely upon the natural and physical properties of the original bitumens, which are apparently quite as good in the Trinidad pitch as in the Bermudez. He again calls attention to the lack of adhesiveness in the Bermudez, but this was before the experiment of Prof. De Smedt.

He states that the pavement laid last year in May at the works of the Cranford Paving Company has lasted and worn well for a year in a place exposed to water, but not to heavy traffic. He again advises the laying of a few thousand yards of experimental pavement to give the promoters of the Bermudez produce an opportunity to display the possibilities of their mixture and the District authorities an opportunity to study it. His final report, made after the experiment, states, with respect to Bermudez asphalt:

"I do not believe the objections to the material are weighty enough to warrant its entire rejection at the present time. I can not, however, see that it has been proved superior or equal to Trinidad pitch. I would recommend, therefore, that a contract be made with Mr. Thomas for laying some one street with the Bermudez asphalt, with the provision that it shall be replaced at any time within five years with some pavement acceptable to the Commissioners if, in their judgment, the Bermudez surface should prove unsatisfactory. This will enable those interested in Bermudez asphalt to demonstrate that it can be handled uniformly and successfully at the works, that it will be properly laid in the street, and that it will withstand traffic.

"I believe that it would not be for the best interest of the District to abandon a pavement made of Trinidad asphalt, with which we have had a satisfactory experience of more than fifteen years, for one of Bermudez asphalt, with which there has been no experience extending over more than one year, until more is learned in regard to its properties and value."

Also, * * * "It is my opinion that surface made with cement having 15 pounds of oil, as proposed by Mr. De Smedt, made from the above materials would prove soft in the summer months under our hot sun, and that with its higher penetration it is not comparable fairly with Trinidad cements of normal consistency when both are immersed in ice water."

Prof. Bowen contends that the union between the oil and bitumen in the cements is not so intimate in the Bermudez as the Trinidad. The former, he showed me, stained the hand with oil very much more than the latter.

The special answer of Prof. De Smedt to the reports of Prof. Richardson, made at the request of the Engineer Commissioner, is herewith transmitted. The principal points in it have been referred to above.

A sample of the Bermudez pavement laid in Detroit was shown to Mr. Reilly, superintendent of minor repairs, who has for many years been in charge of the work of repairing new pavements. He pronounced it a piece of good, tough pavement, perhaps a little soft.

My own conclusions, from the accompanying reports and papers, are that the Bermudez asphalt has not been proved either in the laboratory or street tests very much inferior or superior to Trinidad asphalt. That a pavement has been laid and has successfully passed through one winter is about all that can be said, excepting in regard to the small piece laid in this city.

It is to be regretted that the Detroit pavement has not passed through a summer test, as the defect of the mixture, if any, is its softness during hot weather. The Trinidad asphalt has successfully stood the test of time, and we know just what it will cost for repairs. It would, therefore, seem unwise to try a new material unless there be good reason for it.

The objection to it is that Trinidad asphalt is controlled by one single company.

* * * * * *

I am therefore of the opinion that we should treat competition in asphalt pavements as we do all other work in the District, and entirely reject no bid which gives promise of good work. I believe it is to the interest of the District to encourage the establishment of the plant of the Bermudez Asphalt Company in this city. For this purpose I would recommend that the bid of Mr. Thomas H. Thomas be accepted for 25,000 square yards under such conditions and bonds as the Commissioners may deem necessary. The specifications already require them to guarantee the pavement for five years, and if during that time they prove inferior to the best pavements laid prior to 1886, that they be required to replace the same with satisfactory material.

I would add that the pavements must be laid under the personal supervision of Prof. De Smedt, and he must, upon the first street he lays, satisfy the Engineer Commissioner that he can lay a uniform product of proper consistency before any further work is given to Mr. Thomas.

I would also advise the acceptance of the proposition to retain the 10 per cent until the Engineer Commissioner is satisfied that the cost of repairs will not exceed that of other pavements.

I would also recommend the acceptance of the bid of the Barber Asphalt Paving Company for the remaining sheet asphalt pavements, and the Washington Block and Tile Company for such streets as the Commissioners may deem advisable to pave with asphalt block.

Very respectfully,

G. J. FIEBEGER,
Captain, Corps of Engineers, U. S. Army.

The ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA.

Inclosures:
1 to 5, reports of Prof. Richardson.
6, reports of Prof De Smedt.
7 and 8, letter and proposition of Mr. Thomas.
9, letter of Prof. Bowen.

OFFICE OF THE ENGINEER COMMISSIONER,
Washington, D. C., June 2, 1892.

SIR: At your request I have made an examination of several asphalts and bitumens claimed to be suitable for paving mixtures with the following results:

The material examined included: Gas City Oil Works hydrocarbon, manufactured under patent of July 23, 1891, No. 468867; California asphalt of the Standard Asphalt Company, of California; Bermudez asphalt, of Venezuela, from the New York and Bermudez Company, in the form of crude and refined material and as cement; and with these were compared Trinidad Lake asphalt in the crude and refined state and as a cement.

The data obtained will be found in the following tables:

Tensile strength of briquettes of asphalt surfaces.

	40° F.		77° F.		100° F.	
	Bermudez.	Trinidad.	Bermudez.	Trinidad.	Bermudez.	Trinidad.
1	456	470	170	180	42	58
2	450	476	170	186	50	64
3	446	478	130	168	64	80
4	470	492	153	164	47	54
5	450	468	158	164	52	56
6	448	478	144	184	56	60
7	470	*406	144	186	50	68
8	*350	*408	138	188	38	51
Average	456	477	151	177.5	50	61
Highest	470	492	170	188	64	80
Lowest	446	468	130	164	38	51

* Bad briquettes excluded.

BERMUDEZ ASPHALT.

The Bermudez asphalt, therefore, alone remains to be compared with the Trinidad Lake product.

The lake asphalt, as is well known, contains in its crude state only about 38 per cent of bitumen, while the Bermudez has about 93 per cent. The refined lake contains about 55 per cent of bitumen; the refined Bermudez about 97 per cent.

The refined lake asphalt contains about 37 per cent of mineral matter; the refined Bermudez between 1 and 2 per cent.

It would seem, therefore, that the Bermudez asphalt would be preferable; but, as a matter of fact, the impalpable mineral matter found in the lake asphalt must be added to the Bermudez before it is suitable for use, so that the presence of the water and mineral matter in the Trinidad material is only disadvantageous from the point of view of cost of transportation. Trinidad Lake asphalt, however, contains from 6 to 8 per cent of organic matter not bituminous, where Bermudez contains but a little over 1 per cent, and this is a distinct advantage.

Bermudez asphalt contains more light oils, volatile at a low temperature, than Trinidad, and is softer and more pliable than that, and requires less residuum oil to produce a suitable cement. This is a desirable character, but at the same time, unless the asphalt is refined at a sufficiently high temperature to remove the more volatile portions of these light oils, the cement produced therefrom would be very changeable in penetration or consistency when heated for some time in dipping or storage kettles. This has been found to be the case with cement made from the barrel of refined received from the New York and Bermudez Company, it being necessary to add from time to time during two days more residuum to retain the penetration at the original figure. This would not occur with Trinidad asphalt. The amount of residuum required to produce suitable paving cement from Bermudez is about 15 pounds per 100.

When cylinders of these cements were immersed in water at 40° F. and allowed to cool, the Trinidad specimen could be bent back and forth without breaking and appeared tough, while both of the Bermudez specimens, although oiled to such a point as to be very soft and sticky at 100° F., snapped like candy when sharply bent. In the same way large drops of the Bermudez cement, which when dropped upon wood or glass are very adhesive and sticky at ordinary temperatures, lose this peculiarity and break away cleanly if the temperature is reduced to 40°. This does not take place with Trinidad cement.

This is apparently the most serious defect in the Bermudez asphalt. It softens too much at high temperature, and becomes too brittle at low ones, with loss of adhesion.

What the practical results of this peculiarity would be can only be determined by observation on the street, extending through one or more winters and summers.

EXPERIMENT WITH SURFACE MIXTURES.

To learn as far as possible the behavior of the Bermudez asphalt in surface mixture, 200 pounds of the barrel of refined Bermudez was oiled with a medium residuum and thoroughly mixed. Additional oil was added on two occasions to retain the penetration at about 100° (being the highest figure deemed advisable for summer temperatures, and made as high as possible in order to obtain the best results in frosty

weather). The amount of oil used eventually reached 14.7 pounds per 100 of asphalt. With this cement a surface mixture was made, as follows:

	Pounds.
Cement	75
Limestone dust	50
Sand and stone dust	615

The limestone dust was added to produce the same effect as the fine mineral matter in the Trinidad cement.

The temperature of the melted cement was 350° F., and it was remarked by those experienced in such matters that the consistency was much thinner than that of Trinidad cement under the same circumstances. It was very much more sticky than the latter, but did not pull to quite as long a thread even when mixed with the stone dust. With this mixture several strips of surface were laid upon binder and hydraulic base and alternating with the ordinary Trinidad surface. A patch on G street near Twenty-first was also filled with this material, where it would have heavy traffic. Up to the present time no marked difference can be seen between the two surfaces. Both are cutting under the recent hot sun in the ordinary way.

Of the effect of cold we have been able to judge of course as yet only from samples of the mixture made into briquette form and immersed in water at 40°. Tested in this way, the Bermudez mixture seems fairly tough and comparable with Trinidad.

TENSILE STRENGTH.

From each surface mixture, Bermudez and Trinidad, a number of briquettes were molded and broken at different temperatures with the results given. The Trinidad mixture is a trifle superior at all temperatures, but not sufficiently to be of importance, as it is quite possible the Bermudez mixture might be modified to equal it. It must be remembered also that a brittle cement which would not stand blows may yield to tensile strength less easily than a more elastic material, when breaking weight is applied, although inferior when tested by friction or impact, and so too much weight can not be put upon tests for tensile strength.

With proper facilities grinding and tumbling would be the best tests of the comparative value of the two materials, but neither of these tests can be conducted in the summer months.

CONCLUSIONS.

From the data obtained the following comparison and conclusions may be drawn:

Cements.

	Bermudez.		Trinidad.	
	Good.	Bad.	Good.	Bad.
Mineral matter	1		1	
Organic matter not bitumen	1			1
Residuum required	1			1
Susceptibility to temperature		1	1	
Adhesion at low temperature		1	1	
Tenacity		1	1	

I believe therefore that, while each asphalt has good properties, the points in favor of Trinidad are slightly in excess—perhaps much so; but I think that the Bermudez asphalt is well worth a trial on the street, say on one heavily traveled block. By this test alone can it be finally judged.

Of course in this investigation I leave out all inquiry into the availability of a sufficient commercial supply of the material to make it reliable and of importance. The location of the deposit and the difficulties which I understand attend its transportation make this question one of primary importance.

(2)

After an interview with Mr. E. J. De Smedt, I was able to add somewhat to my previous report, as follows:

"Mr. De Smedt informs me that—

"First. Fine sand should be employed in surface mixtures of Bermudez asphalt.

"Second. As much as 20 per cent of dust of carbonate of lime should be used, or more if the sand is coarse.

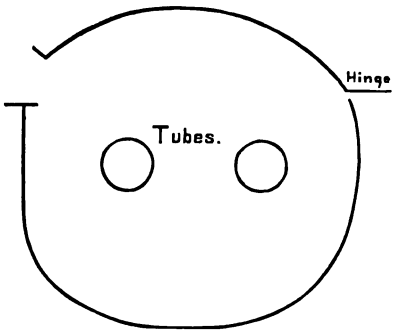
"**Third.** About 10 per cent of bitumen should be found in the mixture.

"**Fourth.** This bitumen should be compared with that of the Neuchatel or rock asphalts rather than with Trinidad.

"**Fifth.** It should not be heated above 300° F.

"**Sixth.** The cement should be somewhat softer than that made from Trinidad asphalt.

"**Seventh.** It is refined in 60-ton tubular stills or kettles at a temperature of 400° F. The kettles have a cylindrical cover opening on hinges. The bottom is also cylindrical. The general shape is as follows. It is heated by flues along the sides:



"**Eighth.** The company has 400 tons in stock refined. They expect 900 tons more.

"**Ninth.** The result of refining is as follows:

	Per cent.
Refined asphalt	68.76
Bottoms	8.16
Skimmings	2.27
Volatilized and lost	20.81
	100.00

"Refined Trinidad asphalt requires from 16 to 21 pounds. If, however, the amount of residuum used in the latter case is calculated to its relation to the pure bitumen of the refined asphalt, it appears that from 29 to 38 pounds of residuum are used for every 100 pounds of bitumen.

"It is certainly a distinct advantage to do away with the use of such an amount of residuum of petroleum as is now employed.

"Residuum apparently mixes with Bermudez asphalt as readily as with Trinidad and does not separate out more easily.

"SUSCEPTIBILITY TO TEMPERATURE.

"Cements made from Bermudez and Trinidad asphalt differ somewhat in their susceptibility to temperature changes. I have experimented with specimens of the following character:

Trinidad, about 20 pounds per 100	penetration 84°
Bermudez, about 15 pounds per 100	penetration 125°
Above plus ½ impalpable limestone dust	penetration 105°

"From his point of view an insufficient amount of limestone was used in my surface mixture, and the sand was too coarse. I would object to this on the ground that from a commercial point of view the use of such a percentage of limestone as Mr. De Smedt desires would make the cost of the pavement excessive and the surface slippery.

"The amount of bitumen I have used seems to him satisfactory. He does not wish to heat the asphalt above 300° in the dipping kettles when he refined at 400° F. This seems an unnecessary precaution.

"If the bitumen must be compared with Neuchatel rock and handled in the same way, the many disadvantages of rock asphalts for roadway, which long ago led to their rejection in the District, do not lead me to form a favorable opinion of the Bermudez bitumen.

"The supply of asphalt possessed by the company is too limited at present to be of any commercial importance, and I understand will not be increased for another year.

"The refining certainly volatilizes a most extraordinary amount of matter, and the yield of refined asphalt is much smaller than one would expect from the analysis of the original deposit, and not largely in excess of that from Trinidad asphalt. The Bermudez asphalt after refining demands the employment of a large amount of limestone dust, which is already represented in the refined Trinidad by the fine inorganic matter already mixed with it.

"Mr. De Smedt claims a preference for the limestone dust over the silicious matter of the Trinidad, but to this I am unable to agree."

At present I believe from what I have thus far seen that while a fair surface may be made of this material after some experience in handling it, yet it will not be able to compete, on its present footing, either technically or financially with Trinidad asphalt.

The company introducing the asphalt present no specifications as to how the work of laying surface with their material should be done, nor do they give any idea of the materials and proportions to be used except in a general conversational way. They have never laid more than a few yards of surface and have themselves had nothing but a theoretical experience.

In view of these facts I believe that while it is for the interest of the District of Columbia to allow a small experimental surface of Bermudez asphalt to be laid in the street where it will be subjected to travel, still this should be done at the expense of those desiring to introduce the material, and that before this is allowed something tangible should be obtained from them as to several points, such as—

The supply of asphalt available in New York now and during the next six months.

What it can be put in the market for per long ton refined.

What percentage of the surface mixture must necessarily be of limestone dust, and the value of this dust.

The present development of the industry seems to me to be too uncertain to demand much serious attention.

Very respectfully,

CLIFFORD RICHARDSON,
Inspector, etc.

Capt. WM. T. ROSSELL,
Engineer Commissioner.

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(3)

WASHINGTON, D. C., *April 24, 1893.*

SIR: I have examined several specimens of Bermudez asphalt submitted to me by you on the 19th, with the result shown in the accompanying table, with which are incorporated some similar determinations made with Trinidad Lake pitch for comparison.

These results are confirmatory of my analytical work of last June, and lead me to draw pretty much the same conclusions in regard to the value of the Bermudez material for paving purposes.

I then showed that in comparison with Trinidad Lake asphalt it possessed both advantages and disadvantages. The refined Bermudez asphalt contains as much as 97 per cent of bitumen, where the lake asphalt has but about 57 per cent, the latter carrying much more impalpable mineral matter. This might appear an advantage, but is really not so to be considered, since this mineral matter must be eventually added to the Bermudez in making a suitable surface. As regards the bitumens present in the Bermudez asphalt, there seems to be no reason to believe it to be better or even equal to that in Trinidad pitch. About the same relative amount is soluble in petroleum naphtha, but it contains a large quantity of light oils volatile below 400° F., and when these are volatilized, as they must be to a great extent in refining and in melting, oiling, and storage of cement, the remaining bitumen approaches more or less to the nature of a glance pitch, and its relation to this material is seen at once in the character of the majority of the deposit at Bermudez, which is simply glance pitch, I am informed. The use of glance pitch and its allied bitumens for paving purposes has not been considered feasible hitherto; and for this reason, without some extended experience with Bermudez aspalt, I should not feel justified in saying, from a mere laboratory examination, that it was a suitable substitute for Trinidad pitch.

Bermudez asphalt possesses the decided advantages over Trinidad pitch of containing little organic matter of a nonbituminous nature and no soluble salts, and in consequence it is not attacked by water, and would therefore not rot in gutters, as *Trinidad asphalt* frequently does. This is, as far as I can determine, the only point *in its favor.*

Paving cement from Bermudez asphalt can be made with somewhat less oil than that from Trinidad pitch, when the Bermudez is lightly refined; but the cement so made I have found to be quite changeable in the dipping kettles under agitation owing to loss of the lighter oils of the asphalt, and it was necessary, as shown in my previous reports, to add petroleum oil from day to day to sustain the penetration at any given point.

This disadvantage would render it difficult to prepare a uniform surface mixture, unless the Bermudez asphalt was refined to the consistency of glance pitch before oiling.

No cement prepared for use in surface mixtures has been submitted to me by the bidders, but, from exeprience with such as I could prepare myself, according to my best judgment it seems that the Bermudez material and the surface made therefrom is much more susceptible to changes of temperature than the same Trinidad products, even with the addition to the Bermudez material of an amount of impalpable stone dust equivalent to the material of similar nature in Trinidad asphalt.

The difference in petroleum oil which must be added to the two cements I do not at present believe to be a disadvantage, the true character of the cement depending, within certain limits, more entirely on the nature and physical properties of the original bitumens, which is apparently quite as good in the Trinidad pitch as in that from Bermudez.

Cements prepared from Bermudez asphalt do not seem to have as strong adhesive powers as those of Trinidad origin. This I have shown in my previous reports. It seems to be a disadvantage, and one usually accompanying the glance-pitch order of bitumens.

Practical demonstrations in the laboratory are the best evidence of these facts.

Practical demonstration in laying surface, which was undertaken in May of last year by me at the works of the Cranford Paving Company, shows that a pavement may be laid of Bermudez material which, in a place exposed to water but not to heavy traffic, has lasted and worn well for a year.

How well a large contract could be carried out with new works and more or less experienced workmen I should hesitate to say, or to decide whether a surface laid with the new asphalt would prove any better or worse than that now laid with Trinidad pitch. In the light of my experience with asphalt work I should think it advisable, for the purpose of obtaining a knowledge of how the Bermudez material may be handled, that not more than a few thousand yards of experimental pavement be laid at first in Washington, thus giving the promoters of the Bermudez asphalt an opportunity to display the possibilities of their material, and the District authorities to study it in comparison with Trinidad pitch.

Beyond this I should consider it inadvisable for the District to go.

Very respectfully,

CLIFFORD RICHARDSON,
Inspector of Asphalt and Cements.

Capt. G. J. FIEBEGER,
Assistant to the Engineer Commissioner.

Comparison of Bermudez and Trinidad pitch, April, 1893.

	Trinidad, 5775.	Ref., 5800.	A, 5879.	B, 5880.	C, 5881.	D, 5882.	No. 5883.	Marks, 5884.
Specific gravity	1.3622	1.3868						
Softens	180°	180°	150°	150°	150°	150°	172°	172°
Flows	190°	190°	170°	170°	170°	170°	180°	180°
Volatilized at 400° in 7 hours	4.98	4.81	12.18	12.56	11.33	12.26	23.31	25.46
Bitumen soluble cd	59.10	57.83	95.94	94.26	96.41	85.93	92.86	91
Organic matter	6.73	7.32	1.85	2.22	1.65	8.76	3.06	5.5
Inorganic	34.17	34.85	2.21	3.52	1.94	5.31	4.08	2.9
Bitumen soluble in petroleum	41.44	40.72	71.51	70.27	71.78			
Per cent of total bitumen soluble	70.12	70.41	74.54	74.55	74.45			

(4)

WASHINGTON, D. C., *May 13, 1893.*

SIR: After such study and examination as I have been able to make in the laboratory of the Bermudez asphalt, which Mr. Thomas proposes to use in the construction of surface under his recent bid, and in the light of Prof. E. J. De Smedt's statements and replies to my criticisms, I would say that I do not believe the objections *to the material are weighty enough* to warrant its entire rejection at the present

time. I can not, however, see that it has been proved superior or equal to Trinidad pitch.

I would recommend, therefore, that a contract be made with Mr. Thomas for laying some one street with the Bermudez asphalt, with the provision that it shall be replaced at any time within five years with some pavement acceptable to the Commissioners, if in their judgment the Bermudez surface should prove unsatisfactory. This will enable those interested in Bermudez asphalt to demonstrate that it can be handled uniformly and successfully at the works; that it will be properly laid in the street, and that it will withstand traffic.

I believe that it would not be for the best interest of the District to abandon a pavement made of Trinidad asphalt, with which we have had a satisfactory experience of more than fifteen years, for one made of Bermudez asphalt, with which there has been no experience extending over more than one year, until more is learned in regard to its properties and value.

Very respectfully,

CLIFFORD RICHARDSON,
Inspector of Asphalt and Cements.

Capt. G. J. FIEBEGER,
Assistant to the Engineer Commissioner.

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(5)

WASHINGTON, D. C., *May 16, 1893.*

SIR: I have examined the cements made in this laboratory recently by Mr. E. J. DeSmedt with Bermudez asphalt and the residuum supplied by him, and find that although they contain carbonate of lime in impalpable powder in sufficient amount to render them, in Mr. DeSmedt's opinion, comparable with Trinidad cements, they are very soft, penetrating as follows:

Pounds oil.	Penetration, 77° F.	Pounds oil.	Penetration, 77° F.
None	38	15	123
11	100	20	140

Trinidad cement in use in work at present penetrates 77 under like conditions.

The residuum oil in use in these cements flashes a little above 300° F. (closed test) and volatilizes nearly 14 per cent of light oil at 400° F. in ten hours. The character of the oil remaining after treatment at 400 is very good,

The limestone dust is of exceptionally good quality, 97 per cent passing a 100-mesh sieve.

It is my opinion that surface made with cement having 15 pounds of oil, as proposed by Mr. De Smedt, made from the above materials, would prove soft in the summer months under our hot suns, and that with its higher penetration it is not comparable fairly with Trinidad cements of normal consistency where both are immersed in ice water.

Very respectfully,

CLIFFORD RICHARDSON,
Inspector of Asphalt and Cements.

Capt. G. J. FIEBEGER,
Assistant to the Engineer Commissioner.

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(6)

NEW YORK, *May 2, 1893.*

GENTLEMEN: I have carefully examined the two reports on Bermudez asphalt, submitted to you by Mr. Clifford Richardson, chemist, and inspector of asphalt and cements to the District of Columbia, one dated April 6, 1893, being a copy of his report of June 2, 1892, with some additions; the other dated April 24, 1893. In these reports I find many errors and contradictions, which I will prove to you by said reports now under consideration, his official annual reports of the past to the District, *and by actual* tests in the laboratory in your presence.

I claim for Bermudez asphalt the following advantages over Trinidad Pitch Lake asphalt as regards the quality of the two alphalts for street-paving purposes.

	Trinidad Pitch Lake.			Bermudez.		
	Bad.	Equal.	Better.	Bad.	Equal.	Better.
1. Mineral matter	1					1
2. Organic matter (not bituminous)	1					1
3. Soluble salts	1					1
4. Petroleum	1					1
5. Asphaltene	1					1
6. Residuum oil required	1					1
7. Susceptible to change of temperature		1			1	
8. Adhesion at low temperature		1			1	
9. Adhesion at high temperature		1			1	
10. Tenacity		1			1	
11. Purity	1					1
12. Separation of oil and asphalt		1			1	
13. Physical ability to lay pavements equal in quality in all parts	1					1
	8	5			5	8

Mr. Richardson admits claims Nos. 2 and 6, so they need no further proof. He states that the mineral impurities in the Trinidad asphalt are not detrimental, and that "as matter of fact the impalpable mineral matter found in the lake asphalt must be added to the Bermudez before it is suitable for use, so that the presence of water and mineral matter in the Trinidad material is only disadvantageous from the point of view of cost of transportation." * * * "Bermudez asphalt possesses the decided advantage over Trinidad pitch of containing little organic matter of a nonbituminous nature and no soluble salts, and, in consequence, it is not attacked by water, and would therefore not rot in gutters, as Trinidad frequently does." In his annual report, 1889–'90, p. 106, he says: "The effect of this acid water can not be a desirable one upon the bitumen, nor the presence of such a large proportion of salts, which in one of the large stills must amount to about a quarter of a ton of common salt and sodium sulphate."

Here I find Mr. Richardson is in a decided contradiction with himself. The soluble salts are a part of the mineral impurities found in the Trinidad asphalt, and the organic nonbituminous matter practically can not be separated from the mineral impurities, neither can either of these (the soluble salts and organic matter) be practically eliminated from the Trinidad asphalt. Yet Mr. Richardson claims that Trinidad asphalt, which contains these detrimental salts and organic matter, is equal and better than an asphalt which does not contain any of these detrimental elements. Mr. Richardson states: "As regards the bitumen present in the Bermudez asphalt there seems to be no reason to believe it to be better or even equal to that in Trinidad pitch," etc. Bermudez asphalt is not glance pitch, and does not resemble glance pitch even after having been refined at 400° F., to which temperature it is raised during refining, or when manufactured into asphaltic cement in order to make the asphalt paving mixture. Glance pitch, as I understand the nomenclature, is a hard, brittle bitumen, from which the greater part of the oils have been extracted either naturally or artificially, and would contain not more than 50 per cent of petrolene.

Bermudez refined asphalt contains 74 per cent of petrolene (see Mr. Richardson's report, April 24, 1893), and after having been refind at 400° F. is quite plastic and malleable at ordinary temperature and can easily be chewed in the mouth. This can not be done with glance pitch, and even after having been refined at 400° F. contains more petrolene than Trinidad Pitch Lake, and because of this greater quantity of petrolene only about one-half the quantity of residuum of petroleum need be added to make a desirable cement as is used with Trinidad Pitch Lake, estimated on percentage of bitumen in each. This fact is admitted by Mr. Richardson to be a distinct advantage. Mr. Richardson says in his report, April 24, 1893, "The difference in petroleum oil which must be added to the two cements I do not at present believe to be a disadvantage, the true character of the cements depending, within certain limits, more entirely on the nature and physical properties of the original bitumens, which is apparently quite as good in the Trinidad pitch as in that from Bermudez." Now, I fail to see from his statements "that less oil used in the manufacturing of the cement is a great advantage, and that Bermudez requires much less oil to make a suitable cement." How he can claim that the natural and physical properties of the bitumen in Trinidad Pitch Lake is quite as good as that in the Bermudez. It seems to me he contradicts his own statements here. If it is admitted that it is advantageous to use as little as possible of residuum of petroleum in the manufacturing of the cement, *it seems to me that an asphalt* to which only one-half the quantity that is

added to the Trinidad Pitch Lake need be added to make a suitable cement must be superior in its natural and physical properties.

Mr. Richardson states (report, April 24, 1893): "Cements prepared from Bermudez asphalt do not seem to have as strong adhesive power as those of Trinidad origin," etc. With the Bermudez asphalt I can at will produce a more or less adhesive and tough cement by changing the percentage of oil and by the addition of fine mineral powder. The foregoing is also an answer to susceptibility to temperature, which depends upon the purity and impurity of the mixture. These are termed by Mr. Richardson the most serious defects of Bermudez asphalt. The adhesive power and susceptibility to temperature are entirely within my will, the proofs of which I will give you in the laboratory.

Mr. Richardson states (sixth report, pp. 42, 43, 1891–'92): "The more of this (petrolene) there is present the softer and tougher is the pitch, and as a chemical change goes on and converts it into harder and less soluble and volatile material, the less yielding and the more brittle the pitch becomes, as is found to be the case in land and iron pitch, which contain the least of it. The soft pitch at the center of the lake was found to volatilize as much as 12 per cent of oil at a temperture of oven 300° F., and in a like way to contain the largest amount of petrolene. Upon the presence of this oily or soluble bitumen the viscosity and cementitious value of the pitch largely depends, but at the same time it is found that adding asphalt oil to pitch in which it is deficient does not restore or renew the properties which have been lost. This shows that the absence of the oily bitumen is indicative of changes which have gone on in the whole of the bituminous constituents of the pitch and rendered it harder and more brittle. It is well known that no addition of petroleum or asphalt oil will give to iron pitch any cementitious value, and in the same way it is found that cement made for paving purposes from pitch in which the original oil has suffered change or is lacking wants toughness and tenacity, and will not pull out into a long thread as well as that made from pitch lake." The foregoing gives a good explanation of the qualities of asphalt, and goes to prove that the overflow asphalts—and principally the iron pitch—is not as good as the lake pitch. It also goes to prove that the Bermudez asphalt is of a superior quality, and surpasses in every respect the Trinidad Pitch Lake asphalt.

In addition to the foregoing, I would say that in the preparing and laying of 25,000 square yards of Bermudez asphalt pavement in Detroit last year I did not have the slightest difficulty in manufacturing an equal quality of asphaltic cement and laying a superior pavement.

I am told by several eyewitnesses that in the immense asphalt deposit at Bermudez glance pitch is found, but the great bulk of the deposit is soft asphalt similar to that imported for paving purposes by the New York and Bermudez Company. The Trinidad Pitch Lake is also surrounded by glance pitch, but not in a pure state, and therefore it is known under different names, such as iron pitch, land pitch, overflow, etc. When these pitches are brought to purity we find them to be glance pitch.

According to descriptions of the asphalt lake at Trinidad and its surroundings, we learn that in the center of the lake the pitch is of a soft nature, and that it is harder in the ratio of the distance from the center. The center pitch loses 6.80 per cent of volatile oil at 400° F., equal to pure bitumen, 13 to 14 per cent. At 500 feet from the center 4.28 light oil is evaporated, equal to 8 per cent, etc. According to Mr. Richardson's sixth annual report, p. 41, "good refined lake asphalt will volatilize not less than 3 per cent, equal to 5 per cent pure bitumen, while land asphalt will rarely equal this, and often in poorer kinds goes below 1 per cent, while from the hard reefs nothing is volatilized." This positively demonstrates the existence of vast quantities of impure glance pitch in the surrounding of the pitch lake. And since it is well proved that all these pitches are of the same origin as the lake pitch, we find that nature repeats itself in regard to the two large deposits of asphalt, Bermudez and Trinidad, with this difference, that the Bermudez asphalt is comparatively pure, while the Trinidad asphalt, having been forced upward through a mud volcano (geyser), is intimately mixed with the impurities of that source.

Herewith I also submit to you a letter written by Mr. Thomas H. Thomas, vice-president of the New York and Bermudez Company, as regards the statement that the greater part of the Bermudez lake is glance pitch.

E. J. DE SMEDT.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA,
Washington, D. C.

(7.)

NEW YORK AND BERMUDEZ COMPANY,
HOME OFFICE, NO. 25 BEAVER STREET,
New York, May 9, 1893.

GENTLEMEN: Referring to statement made by Mr. Clifford Richardson in his report on Bermudez asphalt, dated April 24, 1893, "that the majority of the deposit at Bermudez is simply glance pitch, I am informed," I beg to say that I visited the asphalt lake owned by this company, situated in the State of Bermudez, Venezuela, in January last. Though I was unable to travel entirely over the lake, owing to the lack of sufficient time and the great distance to be traveled to accomplish such an undertaking, I walked some mile and a half from the terminus of our railroad toward the apparent center of the lake, and during this trip I fully satisfied myself of the unlimited quantity of asphalt such as we import for paving purposes, and, further, that over this distance I met with but little glance pitch that could be seen from observation. The asphalt which we import here is dug within 3 0 or 400 feet of the edge of the lake and is fully 1 mile from the seeming source, or flowing river of liquid pitch. This river of liquid pitch, if we may so call it, covers a very large area, being some 300 to 400 feet wide, and in some places much wider. This river at noonday is so soft that it is impossible to pass over it without great danger of sinking out of sight.

Where we dig our pitch now, which is at the edge of the lake, it would be impossible for a man to dig a hole large enough to bury himself. In other words, a man can commence digging on Monday morning, and dig as long as his strength may last during one week, and on the following Monday he will be no further ahead than he was the first day. I do not know who Mr. Richardson's informant is, but I should say no faith should be put in such an assertion without his name being made known. I know of only two men having visited our lake, one of whom, Mr. Kearney, went there in the interest of the Trinidad asphalt people, and the other, Mr. Vandenberg, of Buffalo, who visited our lake for the World's Fair Commission.

The lake has been burned over several times within the last seven years, and formed a crust of carbon, and ashes, and coke. After this surface has been removed, we find the asphalt such as we import for paving purposes.

Yours, truly,

THOMAS H. THOMAS,
Vice-President.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.
Washington, D. C.

(8.)

NEW YORK AND BERMUDEZ COMPANY,
Washington, D. C., May 13, 1893.

DEAR SIRS: On behalf of Thomas H. Thomas, bidder for laying asphalt pavements in this District, I respectfully state that if contracts are awarded to me I shall myself superintend the preparation of all the materials and the laying of the same.

My experience with asphalt pavements dates back to 1869, when I invented the composition of asphalt pavements now in use throughout the country, and since then I have been actively engaged in this work, nine years as chemist and inspector of asphalt pavements of the District of Columbia, and now an expert and chemist to this company.

I have been at work three years in determining the proper composition for the Bermudez pavements.

I shall employ as foreman Mr. Michael Piero, who was with me in 1869 when I invented the pavements, and remained with me until 1878, and was then employed with Mr. Barber for more than ten years. He is thoroughly familiar with the laying of asphalt pavements and with the preparation of the material. I am prepared to do the work with experienced and competent laborers, with many of whom I am personally acquainted.

I have on hand sufficient material at South Amboy, N. J., to lay 100,000 square yards of pavement, and the necessary machinery for the manipulation and mixing of the same is now made and lying at the foundry and machine shops of Messrs. E. N. Gray & Co., of Washington, D. C., and can be set up in thirty days after we are awarded the contract.

I have laid 25,000 square yards of successful pavements in the city of Detroit, Mich., and the authorities of Detroit have contracted for 60,000 additional square yards for this year.

I am *willing that a clause* be put in my contract that if the pavement at the end

of five years is not as good as any pavement in this District of the same age, that it shall be taken up and relaid with material chosen by the District and at my expense.

I will give a satisfactory bond for the end of the guarantee period of such number of years as the Commissioners may deem necessary for a complete test of the pavement, that our pavements will not cost more to keep them in repair than the Trinidad Lake asphalt pavements laid the same year, and we will agree to pay such excess of cost, if any.

I will further agree that the retained 10 per cent is not to be returned to us until the Engineer Commissioner is satisfied that it will not cost more to keep our pavements in repair than to keep in repair the Trinidad Lake asphalt pavements laid down the same year. This 10 per cent shall be applied by the Commissioners to pay any excess of cost of repairs over the Trinidad Lake pavements.

In short, I propose to lay as good a pavement as has ever been laid in this country, to comply with all the requirements of the District, and to fully carry out the spirit as well as the letter of any contract which may be awarded us.

I am willing to give any bond the Commissioners may deem advisable to insure the District against loss due to any possible excess of cost in repairing our pavements over Trinidad Lake asphalt pavements.

Yours, very respectfully,

For THOMAS H. THOMAS,
G. J. DE SMEDT.

I confirm the above.

THOMAS H. THOMAS.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

[E. N. Gray & Co., founders, machinists, and boilermakers.]

WASHINGTON, D. C., *May 12, 1893.*

RESPECTED SIR: Complying with your request, we are glad to state that in execution of order now on our books, had sometime since from the New York and Bermudez Company, for the required machinery for an asphalt-mixing plant, that we have the greater part of the work done and are in position to deliver it and the remainder to full completion of order within thirty days, or as fast as the progress of the building and masonry work for its reception may be made ready to receive it.

Yours truly,

E. N. GRAY & Co.
B.

Prof. E. J. DESMEDT.

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(9)

WASHINGTON, D. C., *May 15, 1893.*

DEAR SIR: The experiments of Prof. DeSmedt on the 11th instant, in the District inspector's laboratory, seemed to me at the time to be entirely irrelevant or rather misleading. They were made to show that Bermudez material is not sensitive to changes of temperature, especially of low temperature. The material with which the professor experimented was so softened as to withstand cold, but it is questionable (so my experiments on the material indicate) that his cement thus soft could be used practically on account of summer's heat. Quite all asphalts capable of taking residuum can be so tempered as to remain soft at low temperatures. However, I very carefully duplicated his residuum sample of cement using his materials. The cement thus formed was then compared with regular Lake asphalt cement (the same sample that was brought into comparison on the 11th instant in the DeSmedt experiment). These two cements gave the following results, under exactly the same conditions and treatment, and at the same time:

	Bermudez.	Lake asphalt cement.
Penetration (softness)	94	58
Treated at 330° F. 15 minutes	67	51
Again treated at 330° F. 30 minutes	58	49
Then cooled to 63° F	28	24

The first three tests show a rapid hardening of the Bermudez; the same effect is produced by "weathering" or exposure in street top.

Again, the total change in softness is 66 Bermudez and 34 Lake asphalt cement, or 70 per cent for Bermudez and 57 per cent for Lake asphalt cement.

The bitumen extracted from these cements showed a penetration (softness), Bermudez 196, while that of Lake asphalt cement showed 116, or in the relation of 170 per cent to 100 per cent.

With such cement as exhibited by DeSmedt there is certainly a range of difficulties which people experienced in asphalt paving would be quite slow to accept under bond.

Respectfully, yours,

H. C. BOWEN.

Capt. G. J. FIEBEGER,
Assistant in Charge of Surface Department, Washington, D. C.

REPORT OF INSPECTOR OF BOILERS.

WASHINGTON, D. C., *July 16, 1894.*

GENTLEMEN: I have the honor to submit a full report of my office for the fiscal year ending June 30, 1894.

Fee boilers inspected during the year	589
Boilers inspected for District of Columbia	6
Total	595
Boilers condemned for repairs	20
Boilers condemned for new ones	4
New boilers erected	40
Explosions	0
Fees received for inspecting 580 boilers at legal fee, $5 each	2,900

Fees still due from nine boilers.
No fee for District of Columbia work.

District expense for the year.

One assistant, B. R. Wilkerson	$558.00
One laborer, Anthony Addison	419.25
Total amount for labor	977.25
Care of horse, $20 per month	240.00
One horse, $100; extra hire of horse, $2	102.00
One new set of harness, $15; repairing harness, 50 cents	15.50
Repairing, painting, and new top for wagon	50.00
Printing and stationery	12.00
Horseshoeing	15.75
Material for wagon	4.50
Total amount expended	1,417.00
Total amount received	2,900.00
Total amount expended	1,417.00
Balance	1,483.00
Estimate of expenses for the year ending June 30, 1895	1,400.00

I would most respectfully state that the year has been one of success, and I find steam plants in good condition. I am also pleased to state that there have not been any explosions or accidents during the year. For bettering the condition of the office, I would most respectfully recommend to the honorable Commissioners the following:

That an order be issued to all persons owning or using steam boilers within the District of Columbia, that they be required to notify the inspector of steam boilers at least five days prior to expiration of certificate of inspection of their boilers, as this would give them time to have their boilers in good condition for inspection. This would also be a great benefit to the inspector in the discharge of his duties.

Respectfully submitted.

J. H. WILKERSON,
Steam-Boiler Inspector, District of Columbia.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

REPORT OF BOARD OF EXAMINERS OF STEAM ENGINEERS.

WASHINGTON, D. C., *July 13, 1894.*

SIRS: We have the honor to present to you the report of the board of examiners of steam engineers for the year ending June 30, 1894.

The following table will show the work as it progressed during each month:

	Meetings held.	Applications received.	Applications approved.	Applicants not competent.	First class.	Second class.	Third class.
1893.							
July	4	4	4			1	3
August	4	11	9	2	1	4	4
September	9	10	8	2		4	4
October	9	9	8	1	1		7
November	8	9	7	2	1	4	2
December	9	6	6		2	2	2
1894.							
January	9	4	3	1			3
February	8	6	4	2	1	1	2
March	9	12	12		1	4	7
April	8	12	11	1	5		6
May	9	14	12	2	1	4	7
June	6	6	6				6
Total	92	103	90	13	13	24	53

In connection with this report we wish to state that a great deal of good has been accomplished by the work of this office, namely, that a more competent and better class of men are employed as engineers. It may not be visible to everyone, but nevertheless the whole community has received its portion of protection against boiler explosions, which mostly occur where incompetent or a worthless class of men are employed to act as engineers.

During the year we had occasion to revoke 3 licenses, 2 of which were revoked for malicious tampering with their employers' boilers and engines; the other 1 was revoked for drunkenness and neglect of duty.

In conclusion, we most respectfully transmit to you the amount necessary to conduct and support this office for the coming year, 1896:

Stationery, printing, etc	$100
Salary for board of examiners	900

We think the above amount will be sufficient to carry through our work for the year ending 1896.

Yours, respectfully,

J. H. WILKERSON, *Chairman,*
H. BOESCH, *Secretary,*
DANL. JOHNSON,
Examining Board.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

REPORT OF SURVEYOR, DISTRICT OF COLUMBIA.

OFFICE OF THE SURVEYOR OF THE DISTRICT OF COLUMBIA,
Washington, D. C., September 28, 1894.

GENTLEMEN: I have the honor to transmit herewith a statement of the transactions of this office during the year ending June 30, 1894.

During that period 480 orders for surveys were received and 118 subdivisions recorded.

The following plats were recorded per order of the honorable Commissioners, viz: Culvert under Kenesaw avenue, in subdivision of "Ingleside;" widening of Quarry road, in Lanier Heights; Arizona avenue from Loughborough road to Canal road; alley, block 43, Holmead Manor; widening of Bunker Hill road between Lincoln *avenue and Brookland;* Wisconsin avenue from Pierce Mill road to River road; *Twelfth street through* "Metropolis View" from Brookland to South Brookland;

Fourth street from Central avenue (Metropolis View) to Bunker Hill road; west front of block 4, Howard University, showing new building line; extension of Second street from Elm street to Wilson street; Cathedral avenue from Connecticut avenue to Woodley road. Twenty reports (after investigation) upon streets, alleys, roads, and miscellaneous subjects.

I beg leave to refer to former reports made by me concerning the condition of the records of this office and earnestly invite your attention thereto.

The condition of some of the oldest records is such that if speedy action looking to their preservation is not taken they will soon be beyond saving, and their loss would be irreparable to both the government of the District of Columbia and the business community. They are books of record of subdivisions of original squares and lots and are made in due form of law, being signed by the proprietor or proprietors and attested by the surveyor. Many of the books have been in continuous use several years, some of them since the year 1809, and are badly torn and defaced.

In order to preserve the records from further defacement and injury and to properly perform the work necessary, I respectfully suggest that an appropriation of $2,600 per annum, be asked for until the work is completed. This sum is necessary for the employment of a competent draftsman at $1,400 per annum, and a clerk at $1,200 per annum, to assist in the performance of the work generally and the verification of the copies.

Some of the books have already been copied, and these as well as those to be copied should be carefully compared and verified and their correctness attested by the surveyor of the District of Columbia. This would give them official status for all practical purposes, and in this way the originals (which should only be used in cases of litigation) could be preserved for many years. The books have been rebound so often, and in many instances the paper cut so close to the writing as not to allow any more to be cut therefrom without completely obliterating the official certificates.

Very respectfully,

WM. FORSYTH,
Surveyor, District of Columbia.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

Statement of character and area in square yards of street pavements July 1, 1894.

Locality.	Asphalt.	Coal tar and concrete.	Granite.	Macadam.	Asphalt block.
Northwest	1,180,146	471,364	197,300	83,097	37,915
Southwest	90,296	32,251	238,468	21,325	11,609
Southeast	111,193	3,154	44,619	110,168	112,879
Northeast	144,944	15,894	19,311	39,830	123,545
Georgetown	85,603	24,600	76,982	9,790	2,519
Total	1,612,182	547,263	576,680	264,210	288,467

Locality.	Vitrified brick.	Cobble.	Unimproved.	Totals.
Northwest	6,885	146,506	251,601	2,374,814
Southwest		90,713	241,388	726,050
Southeast		48,576	499,112	929,701
Northeast		1,738	579,716	924,978
Georgetown		26,480	57,080	283,054
Total	6,885	314,013	1,628,897	5,238,597

RECAPITULATION.

	Square yards.
Asphalt	1,612,182
Coal tar and concrete	547,263
Granite	576,680
Macadam	264,210
Asphalt block	288,467
Vitrified brick	6,885
Cobble	314,013
Unimproved	1,628,897
Total	5,238,597

Table showing mileage of street pavements July 1, 1894.

Section.	Asphalt.*		Coal tar.		Granite.		Cobble.		Macadam.	
	Linear feet.	Miles.	Linear feet.	Miles.	Linear feet.	Miles.	Linear feet.	Miles.	Linear feet.	Miles.
Northwest	261,688	49.56	112,176	21.24	48,725	9.26	29,761	5.63	16,770	3.17
Southwest	21,190	4.01	8,760	1.66	58,170	11.01	20,750	3.97	3,310	.63
Southeast	31,026	5.87	870	.16	16,310	3.09	16,355	3.10	32,170	6.09
Northeast	38,953	7.37	2,940	.57	4,300	.80	780	.14	8,200	1.55
Georgetown	23,361	4.43	7,680	1.45	23,456	4.44	8,810	1.64	300	.06
Total	376,218	71.25	132,424	25.08	150,961	28.60	76,456	14.48	60,750	11.50
Suburban	23,444	4.44			4,490	.85			20,048	3.79

Section.	Asphalt block.		Vitrified brick.		Unimproved.		Total.	
	Linear feet.	Miles.	Linear feet.	Miles.	Linear feet.	Miles.	Linear feet.	Miles.
Northwest	9,585	1.81	1,081	.20	65,312	12.37	545,098	103.24
Southwest	3,050	.58			54,750	10.37	169,980	32.23
Southeast	28,470	5.39			134,645	25.50	259,846	49.20
Northeast	25,550	4.84			151,544	28.20	232,267	43.97
Georgetown	2,240	.42			18,755	3.55	84,602	15.99
Total	68,895	13.04	1,081	.20	425,006	80.49	1,291,791	244.63
Suburban	300	.06					48,272	9.14

* Includes Bermudez, 6,090 linear feet—1.15 miles.

NORTHWEST.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
North Capitol street, from B (west side) to C	490	50	1,395	.....	.....	.....	.....	.....	.....	1883	.....	
North Capitol street, from C (west side) to D	400	50	.....	.....	.....	.....	.....	.....	1,050	.....	.....	
North Capitol street, from D (west side) to E	400	50	.....	.....	1,198	.....	.....	.....	.....	1893	.....	
North Capitol street, from E (west side) to Massachusetts avenue.	540	50	.....	1,928	.....	.....	.....	.....	.....	1889	.....	
North Capitol street, from Massachusetts avenue (west side) to I.	1,390	50	3,728	.....	.....	.....	.....	.....	.....	1887	.....	
North Capitol street, from I (west side) to K	440	50	1,443	.....	.....	.....	.....	.....	.....	1889	.....	
North Capitol street, from K (west side) to M	1,130	50	3,103	.....	.....	.....	.....	.....	.....	1892	.....	
North Capitol street, from M (west side) to New York avenue.	500	50	1,103	.....	.....	.....	.....	.....	.....	1893	.....	
North Capitol street, from New York avenue (west side) to O.	445	50	852	.....	.....	.....	.....	.....	.....	1893	.....	
North Capitol street, from O to Florida avenue	720	50	.....	.....	.....	.....	.....	.....	1,233	.....	.....	
Arthur street, between New Jersey avenue and First, B and C.	470	25	.....	.....	.....	.....	.....	1,366	.....	1886	.....	
First street, from center of Botanical Garden to Pennsylvania avenue.	440	.....	2,270	.....	.....	.....	.....	.....	.....	1883	.....	
First street, from Pennsylvania avenue to F street	2,240	56 40	.....	.....	7,215	.....	*527	590	.....	1892 1879	.....	
First street, from F to H	620	32	.....	.....	1,427	.....	.....	.....	.....	1882	.....	
First street, from H to Defrees	170	32	.....	700	.....	.....	.....	.....	.....	1877	.....	
First street, from Defrees to I	150	32	.....	.....	535	.....	.....	.....	.....	1882	.....	
First street, from I to K	390	32	1,191	.....	.....	.....	.....	.....	.....	1890	.....	
First street, from K to Florida avenue	3,190	32	.....	.....	.....	.....	.....	.....	12,000	.....	.....	
Second street, from Pennsylvania avenue to Indiana avenue.	860	40	.....	.....	3,693	.....	.....	.....	.....	1891	.....	
Second street, from Indiana avenue to I street	2,900	40	10,452	.....	.....	.....	.....	.....	.....	1891	.....	
Kirby street, between First and Third, M and N	480	32	.....	.....	.....	.....	.....	.....	1,760	.....	.....	
Third street, from center of Botanical Garden to Pennsylvania avenue.	500	.....	.....	.....	.....	2,230	.....	.....	.....	1881	.....	

* Vitrified brick.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Third street, from Pennsylvania avenue to D street	1,130	32	.....	.....	4,231	.....	.....	.....	.....	1880	.....	
Third street, from intersection of D	.....	32	436	.....	.....	.....	.....	.....	.....	1880	.....	
Third street, from Indiana avenue to L street	3,260	40	16,359	.....	.....	.....	.....	.....	.....	1875	1883 1884	Coal tar.
Third street, from Indiana avenue to New York avenue	500	40	2,685	.....	.....	.....	.....	.....	.....	1875	.....	
Third street, from New York avenue to P street	950	35	4,177	.....	.....	.....	.....	.....	.....	1893	.....	
Third street, from P to Florida avenue	1,207	35	.....	.....	.....	.....	.....	.....	4,706	.....	.....	
Fourth street, from Indiana avenue to New York avenue	3,610	32	3,573	10,719	.....	.....	.....	.....	.....	1872	1878 1889 1891	Do.
Fourth street, from New York avenue to M street	230	32	.....	.....	.....	647	.....	.....	.....	1873	.....	
Fourth street, from M to New York avenue	1,170	.....	.....	.....	2,401	.....	.....	.....	.....	1891	.....	
Fourth street, from New Jersey avenue to Florida avenue.	1,530	30	5,594	.....	.....	.....	.....	.....	.....	1891	.....	
Four-and-a-half street, from center of Mall to Pennsylvania avenue.	720	55	.....	1,143	.....	.....	.....	.....	.....	1886	.....	
Four-and-a-half street, from Pennsylvania avenue to D street.	760	50	.....	.....	.....	.....	.....	4,549	.....	1889	.....	
Fifth street, from D to G	1,240	46	3,341	.....	.....	.....	.....	.....	.....	1885	.....	
Fifth street, from G to New York avenue	930	32	.....	7,389	.....	.....	.....	.....	.....	1873	1887 1873	Do.
Fifth street, from New York avenue to O street	1,620	32	5,666	.....	.....	.....	.....	.....	.....	1879	.....	
Fifth street, from O to Q	850	32	3,123	.....	.....	.....	.....	.....	.....	1889	.....	
Fifth street, from Q to Florida avenue	1,360	32	4,436	.....	.....	.....	.....	.....	.....	1889	.....	
Sixth street, from center of Mall to Missouri avenue	670	60	.....	.....	.....	3,333	.....	.....	.....	.....	.....	
Sixth street, from Missouri avenue to Lousiana avenue	850	60	5,078	.....	.....	.....	.....	.....	.....	1885	.....	
Sixth street, from Lousiana avenue to E street	550	32	791	2,196	.....	.....	.....	.....	.....	1877	1882	Do.
Sixth street, from E to F	470	32	1,313	.....	.....	.....	.....	.....	.....	1878	1889	Asphalt.
Sixth street, from F to G	250	32	.....	.....	975	.....	.....	.....	.....	1880	.....	
Sixth street, from G to New York avenue	1,790	32	.....	6,896	.....	.....	.....	.....	.....	1887	.....	

Marion street, between Sixth and Seventh, P and R	1,010	26	2,861						1,730	1889		
Wiltberger street, between Sixth and Seventh, S and T	500	20										
Seventh street, from center of Mall to Pennsylvania avenue	11,500	51			4,328					1878		
Seventh street, from Pennsylvania avenue to D street	450	51	1,579							1879		
Seventh street, from intersection of Louisiana avenue								3,214		1879		
Seventh street, from D to Q	5,870	49			18,465							
Seventh street, from Q to Florida avenue		51			3,902					1882		Granite (west side).
Seventh street, from Q to Florida avenue	1,860	51			3,816					1889		Granite (east side).
Seventh street, from intersection of E to Q					5,597					1877		
Eighth street, from Pennsylvania avenue to E street	700	51			3,653					1881		
Eighth street, from E to F	330	51	1,964							1877	1882	Coal tar.
Eighth street, from G to L	1,650	30	4,880							1883		
Eighth street, from L to N	1,070	30	3,610							1875	1890	Do.
Eighth street, from N to R	1,940	30	6,493							1883		
Eighth street, from R to S	530	30		2,063						1887		
Eighth street, from S to Florida avenue	920	30		3,624						1888		
Ninth street, from B to Pennsylvania avenue	500	51			2,260					1879		
Ninth street, from Pennsylvania avenue to P street	5,610	51	28,113	4,250						1892	1878, 1885, 1886, 1882	Do.
Ninth street, from P to Rhode Island avenue	670	51	1,583							1883		
Ninth street, from Rhode Island avenue to Florida avenue	3,000	51	3,371							1884		
Ninth street, from P to Florida avenue		51	6,147							1875		
Columbia street, between Ninth and Tenth, Q and O				2,683						1873		
Opera Square, between Ninth and Tenth streets, Pennsylvania avenue and Louisiana avenue	480				784							
Tenth street, from B to Pennsylvania avenue	740	51			3,103					1872		
Tenth street, from Pennsylvania avenue to E street	580	32	1,353							1885		
Tenth street, from E to F	380	32			1,373					1879		
Tenth street, from F to G	300	32	955							1880		
Tenth street, from G to K	1,200	32	4,828							1875	1887, 1890	Do.
Tenth street, from K to M	980	32	3,368							1880		
Tenth street, from M to O	1,020	32	3,443							1881		
Tenth street, from O to R	1,420	32	4,433							1883		
Tenth street, from R to S	530	32		1,992						1887		
Tenth street, from S to T	500	32	1,948							1891		
Tenth street, from T to Florida avenue	1,500	32							6,496			
Eleventh street, from B to Pennsylvania avenue	500	55				3,145				1872		
Eleventh street, from Pennsylvania avenue to E	430	55	2,500							1878		
Eleventh street, from E to F	362	55			1,734					1879		
Eleventh street, from F to G	266	55			1,214					1880		
Eleventh street, from G to K	1,330	55, 35		3,866						1875		
Eleventh street, from K to O	1,190	35			4,326					1880		
Eleventh street, from O to Florida avenue	4,000	35	8,734							1891		
Twelfth street, from center of Mall to B	840	40			3,735					1873		
Twelfth street, from B to Pennsylvania avenue	850	40			3,900					1872		
Twelfth street, from Pennsylvania avenue to E	320	38	1,292							1878	1886	Asphalt.
Twelfth street, from E to F	420	38			1,629					1879		

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Twelfth street, from F to N	340 3,330	32	1,200	11,839	.....	.....	.....	.....	.....	1875	1894 1889	Coal tar.
Twelfth street, from intersection of G	.....	.....	198	.....	.....	.....	.....	.....	.....	1881	.....	
Twelfth street, from N to O	430	32	1,522	.....	.....	.....	.....	.....	.....	1881	.....	
Twelfth street, from O to Rhode Island avenue	530	32	1,859	.....	.....	.....	.....	.....	.....	1883	.....	
Twelfth street, from Rhode Island avenue to Vermont avenue.	660	32	.....	2,304	.....	.....	.....	.....	.....	1887	.....	
Twelfth street, from Vermont avenue to S	500	32	1,798	.....	.....	.....	.....	.....	.....	1888	.....	
Twelfth street, from S to V	1,460	32	5,377	.....	.....	.....	.....	.....	.....	1890	.....	
Twelfth street, from V to Florida avenue	900	32	3,554	.....	.....	.....	.....	.....	.....	1891	.....	
Cleveland street, between Twelfth and Thirteenth, W and Florida avenue.	500	25	.....	.....	.....	.....	.....	1,297	.....	1886	.....	
Thirteenth street, from B to C	400	40	1,760	.....	.....	.....	.....	.....	.....	1878	1893	Asphalt.
Thirteenth street, from C to Pennsylvania avenue	700	40	3,037	.....	.....	.....	.....	.....	.....	1875	1887	Do.
Thirteenth street, from Pennsylvania to E	150	40	.....	676	.....	.....	.....	.....	.....	1878	.....	
Thirteenth street, from E to F	400	40	.....	.....	1,741	.....	.....	.....	.....	1879	.....	
Thirteenth street, from F to P	4,150	32	.....	15,682	.....	.....	.....	.....	.....	1872	1888 1889	Coal tar.
Thirteenth street, from P to Corcoran	600	32	2,126	.....	.....	.....	.....	.....	.....	1881	.....	Coal tar.
Thirteenth street, around Iowa circle	1,313	32	8,838	.....	.....	.....	.....	.....	.....	1873	1885	
Thirteenth street, from Corcoran to T	1,310	32	4,273	.....	.....	.....	.....	.....	.....	1884	.....	
Thirteenth street, from T to Florida avenue	1,800	32	7,271	.....	.....	.....	.....	.....	.....	1891	.....	
Thirteenth street, from intersection of N	.....	32	613	.....	.....	.....	.....	.....	.....	1879	.....	
Thirteenth street, from intersection of B	.....	32	775	.....	.....	.....	.....	.....	.....	1879	.....	
Kingman Place, between Thirteenth and Fourteenth, P and Q streets.	500	30	1,699	.....	.....	.....	.....	.....	.....	1889	.....	
Thirteen-and-a-half street, from B street N. to Pennsylvania avenue.	1,300	35	.....	.....	.....	5,095	.....	.....	.....	1872	.....	
Fourteenth street, from center of Mall to B street N	775	40	.....	.....	3,920	.....	.....	.....	.....	1873	.....	
Fourteenth street, from B street N. to Pennsylvania avenue.	1,340	70	.....	8,852	.....	.....	.....	.....	.....	1887	.....	
Fourteenth street, from Pennsylvania avenue to F street.	320	70	.....	.....	1,724	.....	.....	.....	.....	1884	.....	

Fourteenth street, from New York avenue to H	270	70	1,549						1874	1891	Do.
Fourteenth street, from H to Florida avenue			29,086						1879	1892 1893	Asphalt (east side).
Fourteenth street, from H to M	1,800	70	5,682						1879	1893 1894	Asphalt (west side).
Fourteenth street, from M to Florida avenue	5,060	70	14,583						1882		
Johnson street, from Fourteenth (R and S) to Fifteenth	500	30	1,446						1889		
Portner street, between Fourteenth and Fifteenth, W and V.	370	25					1,025		1888		
Fifeeenth street, from B to Pennsylvania avenue	1,520	43	772			*1,020	5,220		1883	1894	Asphalt block.
Fifteenth street, from Pennsylvania avenue to New York avenue.	900	70	4,938						1872	1891 1878	Coal tar.
Fifteenth street, from New York avenue to Vermont avenue.	1,250	40 50	7,005						1873	1893 1879	Do.
Fifteenth street, from I to K	300	40	1,724						1873	1890	Do.
Fifteenth street, from K to Rhode Island avenue	1,850	32	6,921						1881		
Fifteenth street, from Rhode Island avenue to S street.	2,200	32	3,296	4,420					1875	1887 1891	Do.
Fifteenth street, from S to U	1,100	32	3,768						1885		
Fifteenth street, from U to Florida avenue	900	32						2,806			
Executive avenue, south and west to Treasury Department.	1,195		5,601						1889		
Fifteen-and-a-half street, from Pennsylvania avenue to H street.	465	40	2,974						1872	1880	Coal tar.
Sixteenth street, from H to Scott Circle	2,250	50	12,450						1881		
Sixteenth street, from Scott Circle to R street	1,745	50	10,818						1882		
Sixteenth street, from R to Florida avenue	2,065	50	13,391						1883		
Sixteen-and-a-half street, from Pennsylvania avenue to H street.	465	40	2,315						1872	1880	Do.
Seventeenth street, from B to New York avenue	1,640	50		9,285					1872	1879	Do.
Seventeenth street, from New York avenue to I street.	1,560	50	4,847	4,758					1873	1894 1880 1886	Do.
Seventeenth street, from I to Massachusetts avenue	2,535	50 32		10,603					1873	1894 1878	Do.
Seventeenth street, from Massachusetts avenue to P street.	580	32		2,095					1875	1894	Do.
Seventeenth street, from P to Q	500	32		1,765					1887		
Seventeenth street, from Q to R	500	32		1,874					1889		
Seventeenth street, from R to T	950	32	2,946						1889		
Seventeenth street, from T to Florida avenue	1,050	32						4,076			
Eighteenth street, from river to D	800	32						2,473			
Eighteenth street, from D to E	360	32	1,544						1892		
Eighteenth street, from E to New York avenue	200	32		1,096					1873	1878	Do.
Eighteenth street, from New York avenue to Pennsylvania avenue.	1,170	32	4,895						1881		
Eighteenth street, from Pennsylvania avenue to K street.	920	32	4,515						1872	1882	Do.
Eighteenth street, from K to L	400	32					1,431		1886		

*Vitrified brick.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Eighteenth street, from L to P	1,950	32	2,402	5,182	.....	.....	.....	.....	.....	1873	{1879 / 1878}	Coal tar.
Eighteenth street, from P to Q	500	32	.....	1,764	.....	.....	.....	.....	.....	1887	.....	
Eighteenth street, from Q to S	850	32	3,130	.....	.....	.....	.....	.....	.....	1891	.....	
Eighteenth street, from S to Florida avenue	940	32	3,823	.....	.....	.....	.....	.....	.....	1893	.....	
Nineteenth street, from river to E	1,180	32	.....	.....	.....	.....	.....	.....	3,644	.....	.....	
Nineteenth street, from E to New York avenue	225	32	.....	.....	.....	1,028	.....	.....	.....	.....	.....	
Nineteenth street, from New York avenue to Pennsylvania avenue.	1,370	32	.....	6,421	.....	.....	.....	.....	.....	1873	1878	Do.
Nineteenth street, from Pennsylvania avenue to K street.	655	32	.....	.....	3,170	.....	.....	.....	.....	1880	.....	
Nineteenth street, from K to M	1,010	32	.....	.....	3,726	.....	.....	.....	.....	1885	.....	
Nineteenth street, from M to N	520	32	.....	.....	1,894	.....	.....	.....	.....	1882	.....	
Nineteenth street, from N to Dupont Circle	570	32	2,409	.....	.....	.....	.....	.....	.....	1881	.....	
Nineteenth street, from Dupont Circle to Florida avenue	2,000	32	2,048	5,550	.....	.....	.....	.....	.....	1873	{1878 / 1891}	Do.
Twentieth street, from river to E street	1,450	32	.....	.....	.....	.....	.....	.....	3,662	.....	.....	
Twentieth street, from E to Pennsylvania avenue	1,550	32	.....	5,579	.....	.....	.....	.....	.....	1873	1878	Do.
Twentieth street, from Pennsylvania avenue to I street.	160	32	981	.....	.....	.....	.....	.....	.....	1879	.....	
Twentieth street, from I to K	375	32	.....	.....	1,350	.....	.....	.....	.....	1879	.....	
Twentieth street, from K to P	2,425	32	2,995	5,212	.....	.....	.....	.....	.....	1873	{1894 / 1880}	Do.
Twentieth street, from P to Connecticut avenue	315	32	.....	2,167	.....	.....	.....	.....	.....	1873	.....	
Twentieth street, from R to S	508	32	1,995	.....	.....	.....	.....	.....	.....	1889	.....	
Twentieth street, from S to Florida avenue	600	32	.....	.....	.....	900	.....	.....	.....	1872	.....	
Hopkins street, between Twentieth and Twenty-first, O and P.	350	32	949	.....	.....	.....	.....	.....	.....	1893	.....	
Twenty-first street, from River to E street	1,500	32	.....	.....	.....	.....	.....	.....	3,662	.....	.....	
Twenty-first street, from E to Pennsylvania avenue	1,830	.....	.....	6,101	.....	.....	.....	.....	.....	1873	1878	Do.
Twenty-first street, from Pennsylvania avenue to K street.	380	32	.....	.....	1,594	.....	.....	.....	.....	1875	.....	
Twenty-first street, from K to Q	2,770	32	10,892	.....	.....	.....	.....	.....	.....	1875	1891	Do.
Twenty-first street, from Q to Hillyer	770	32						*956	.....	1884	.....	

Twenty-first street, from Hillyer to R	250	32		988							1887	
Twenty-first street, from R to Florida avenue	450	32	1,483								1890	
Twenty-second street, from river to Virginia avenue	1,565	32								3,758		
Twenty-second street, from Virginia avenue to F street	260	32				1,520					1872	
Twenty-second street, from F to G	315	32	1,407								1893	
Twenty-second street, from G to Pennsylvania avenue	1,625	32		4,641							1873	1894
Twenty-second street, from Pennsylvania avenue to M street	1,000	32	2,852								1885	
Twenty-second street, from M to O	1,150	32	3,894								1890	
Twenty-second street, from O to P	230	32	1,586								1889	
Twenty-second street, from P to Florida avenue	450	32								1,369		
Twenty-third street, from Upper Water to E	1,670	32								3,413		
Twenty-third street, from E to Virginia avenue		32								1,778		
Twenty-third street, from Virginia avenue to I street	1,050	32				4,711					1874	
Twenty-third street, from I to Pennsylvania avenue	400	32	1,425								1891	
Twenty-third street, from Pennsylvania avenue to M street	720	32							2,387			
Twenty-third street, from M to Rock Creek	950	32								3,699		
Twenty-fourth street, from E to G	730	32								2,069		
Twenty-fourth street, from G to Pennsylvania avenue	1,376	32				5,192					1873	
Twenty-fourth street, from Pennsylvania avenue to M street	660	32				2,540					1872	
Twenty-fourth street, from M to Rock Creek	1,160	32								3,908		
Twenty-fifth street, from river to Virginia avenue	1,700	32								5,735		
Twenty-fifth street, from Virginia avenue to K street	1,100	32					2,727				1890	
Twenty-fifth street, from K to Pennsylvania avenue	330	32	1,163								1890	
Twenty-fifth street, from Pennsylvania avenue to M street	530	32	1,693								1890	
Twenty-fifth street, from M to Rock Creek	1,140	32								3,747		
Twenty-sixth street, from river to G street	1,320	32				2,378				2,599		
Twenty-sixth street, from G to K	1,400	32				5,042					1874	
Twenty-sixth street, from K to Pennsylvania avenue	470	32			1,680						1882	
Twenty-sixth street, from Pennsylvania avenue to M street	350	32		919							1887	
Twenty-sixth street, from M to Rock Creek	220	32								800		
Twenty-seventh street, from E to L street (R. C.)	2,750	32								8,651		
Twenty-eighth street, from Rock Creek to K street	600	35								1,066		
B street, from North Capitol to First	820	35			3,578						1873	
B street, from First to Third	810	35			5,258						1880	
B street, from Sixth to Seventh	500	56*			1,675						1890	
B street, from Seventh to Twelfth	1,690	101				18,686	*2,374				1873	
B street, from Twelfth to Seventeenth	3,150	60				23,581					1874	
B street, from Seventeenth to Twenty-third	3,050	60								18,680		
Little B street, from Tenth to Twelfth	560					567						
C street, from North Capitol to First	700	46 / 63			3,802						1879	
C street, from Second to Third	450	32			1,291						1882	
C street, from Third to Four-and-a-half	610	30	2,054								1882	
C street, from Four-and-a-half to Seventh	1,020	46	4,059		544						1885	

Do.

*Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
C street, from Seventh to Eighth	250	46			1,183					1879		
C street, from Ninth to Tenth	470	40			1,656					1872		
C street, from Tenth to Fifteenth	1,420	40				7,820				1872		
C street, from Seventeenth to Twenty-third	3,000	32							10,453			
D street, from North Capitol to New Jersey avenue	470	35			1,617					1894		
D street, from New Jersey avenue to Fourth street	1,470	36	3,412	406						1875	1883	Coal tar.
D street, from Fifth to Sixth	110	35	275							1889		
D street, from Sixth to Tenth	1,540	36			6,278					1879		
D street, from Twelfth to Fifteenth	1,360	40				5,579				1873		
D street, from Seventeenth to Eighteenth	660	35	2,788							1891		
D street, from Eighteenth to Twenty-third	1,800	32							8,273			
E street, from North Capitol to New Jersey avenue	620	35	2,494							1887	1893	Do.
E street, from New Jersey avenue to Fourth street	1,300	35	4,932							1879		
E street, from Fifth to Eleventh	2,160	35	9,323							1878	1889 1891	Asphalt.
E street, from Eleventh to Thirteenth	780	40			2,487					1879		
E street, from Thirteenth to Fourteenth	300	35						1,093		1878	1888	Asphalt block.
E street, from Pennsylvania avenue to Fifteenth	1,000	35	3,031								1889	
E street, from Seventeenth to Nineteenth	450 1,030	35		1,642		3,319				1873		
E street, from Nineteenth to Twenty-second	1,400	35				7,149					1872 1873	
E street, from Twenty-second to river	2,050	35							5,871			
F street, from North Capitol to New Jersey avenue	750	35		2,962						1878		
F street, from New Jersey avenue to Fourth street	1,180	35	4,382							1879	1892	Asphalt.
F street, from Fifth to Seventh	800	35	2,359							1878	1889	Asphalt (south side
Do	760	35		1,152						1877		
F street, from Seventh to Ninth	540	51	1,913							1877	1891 1879	Asphalt (south side).
F street, from Ninth to Twelfth	1,160	60	1,578	4,257						1877	1891	Coal tar.
F street, from Twelfth to Thirteenth	400	60	890	1,213						1877	1891	Do.
F street, from Thirteenth to Fifteenth	1,080	60	6,467							1883	1892	Do.
F street, from Seventeenth to Eighteenth	630	40	2,856							1881		

F street, from Eighteenth to Twenty-second	1,650	40		6,430					1873	1878	Do.
Eldridge street, from Twentieth to Twenty-first	470	20									
F street, from Twenty-second to Virginia avenue	534	40	2,360					1,033	1894		
F street, from Virginia avenue to New Hampshire avenue.	{400 / 800}	35			1,711		*2,964		1894		
F street, from New Hampshire avenue to Twenty-seventh street.	350	35						2,272			
G street, from North Capitol to New Jersey avenue	900	35		3,802					1887		
G street, from New Jersey avenue to Seventh street	2,620	35	3,700	6,873					1872	{1894 / 1878 / 1879 / 1889}	Do.
G street, from Seventh to Ninth	550	40	2,514						1872	1884	Do.
G street, from Ninth to Fifteenth	2,670	40	6,576	6,008					1872	{1878 / 1889 / 1890}	Do.
G street, from Seventeenth to Twenty-second	7,600	36	3,643	6,633					1872	{1887 / 1893}	Do.
G street, from Twenty-second to Twenty-seventh	2,080	36			9,511				1873		
Washington street, between G and H, Fourth and Fifth	460	35	2,128						1889		
Grant Place, between G and H, Ninth and Tenth streets.	530	24	1,435						1875		
H street, from North Capitol to Fourth	1,800	56	784		8,337				1879		
H street, from Fourth to Seventh	1,590	35		6,381					1887		
H street, from Seventh to Thirteenth	2,300	35	9,067						1872		
H street, from Thirteenth to Fourteenth	530	40	2,144						1872	1886	Do.
H street, from Fourteenth to Fifteenth	430	56	1,735						1884		
H street, from Fifteenth to Vermont avenue	360	56	1,729						1874	1882	Do.
H street, from Vermont avenue to Connecticut avenue	1,120	50	2,889						1881	1887	Asphalt block.
H street, from Connecticut avenue to Nineteenth street	1,425	50	5,451						1884		
H street, from Eighteenth to Twenty-second	1,990	32	6,493						1872	1880	Coal tar.
H street, from Twenty-second to Twenty-sixth	1,520	36				4,156			1875		
H street, from Twenty-sixth to Twenty-seventh	375	32				1,066					
Defrees street, between North Capitol and First, H and I.	840	22						†1,967	1886		
I street, from North Capitol to New Jersey avenue	1,150	35		4,557							
I street, from New Jersey avenue to Fifth street	1,560	35	5,804						1884		
I street, from Fifth to Eighth	1,000	32	4,210						1880		
I street, from Eighth to Ninth	250	32	759						1885		
I street, from Ninth to Tenth	580	32	2,090						1879		
I street, from Tenth to Eleventh	300	32	714						1886		
I street, from Eleventh to Thirteenth	670	40	3,700						1872	1878	Do.
I street, from Thirteenth to Fifteenth	1,260	40	4,632						1874		
I street, from Fifteenth to Seventeenth	1,030	48	8,322						1873	{1894 / 1878}	Do.
I street, from Seventeenth to Eighteenth	640	40	2,672						1880		
I street, from Pennsylvania avenue to Twenty-third street.	1,450	38	6,296						1891		Macadamized.
I street, from Twenty-third to Twenty-seventh	1,620	40					7,536		1886		

*Vitrified brick. †Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
C street, from Seventh to Eighth	250	46	.....	.....	1,183	.....	.....	.....	.....	1879	.....	
C street, from Ninth to Tenth	470	40	.....	.....	1,656	.....	.....	.....	.....	1872	.....	
C street, from Tenth to Fifteenth	1,420	40	.....	.....	.....	7,820	.....	.....	.....	1872	.....	
C street, from Seventeenth to Twenty-third	3,000	32	.....	.....	.....	.....	.....	.....	10,453	.....	.....	
D street, from North Capitol to New Jersey avenue	470	35	.....	.....	1,617	.....	.....	.....	.....	1894	.....	
D street, from New Jersey avenue to Fourth street	1,470	36	3,412	406	.....	.....	.....	.....	.....	1875	1883	Coal tar.
D street, from Fifth to Sixth	110	35	275	.....	.....	.....	.....	.....	.....	1889	.....	
D street, from Sixth to Tenth	1,540	36	.....	.....	6,278	.....	.....	.....	.....	1879	.....	
D street, from Twelfth to Fifteenth	1,360	40	.....	.....	.....	5,579	.....	.....	.....	1873	.....	
D street, from Seventeenth to Eighteenth	660	35	2,788	.....	.....	.....	.....	.....	.....	1891	.....	
D street, from Eighteenth to Twenty-third	1,800	32	.....	.....	.....	.....	.....	.....	8,273	.....	.....	
E street, from North Capitol to New Jersey avenue	620	35	2,494	.....	.....	.....	.....	.....	.....	1887	1293	Do.
E street, from New Jersey avenue to Fourth street	1,300	35	4,932	.....	.....	.....	.....	.....	.....	1879	.....	
E street, from Fifth to Eleventh	2,160	35	9,323	.....	.....	.....	.....	.....	.....	1878	{1889 / 1891}	Asphalt.
E street, from Eleventh to Thirteenth	780	40	.....	.....	2,487	.....	.....	.....	.....	1879	.....	
E street, from Thirteenth to Fourteenth	300	35	.....	.....	.....	.....	.....	1,093	.....	1878	1888	Asphalt block.
E street, from Pennsylvania avenue to Fifteenth	1,000	35	3,031	.....	.....	.....	.....	.....	.....	.....	1889	
E street, from Seventeenth to Nineteenth	{450 / 1,030}	35	.....	1,642	.....	3,319	.....	.....	.....	1873	.....	
E street, from Nineteenth to Twenty-second	1,400	35	.....	.....	.....	7,149	.....	.....	.....	{1872 / 1873}	.....	
E street, from Twenty-second to river	2,050	35	.....	.....	.....	.....	.....	.....	5,871	.....	.....	
F street, from North Capitol to New Jersey avenue	750	35	.....	2,962	.....	.....	.....	.....	.....	1878	.....	
F street, from New Jersey avenue to Fourth street	1,180	35	4,382	.....	.....	.....	.....	.....	.....	1879	1892	Asphalt.
F street, from Fifth to Seventh	800	35	2,359	.....	.....	.....	.....	.....	.....	1878	1889	Asphalt (south side
Do	760	35	.....	1,152	.....	.....	.....	.....	.....	1877	.....	
F street, from Seventh to Ninth	540	51	1,913	.....	.....	.....	.....	.....	.....	1877	{1891 / 1879}	Asphalt (south side).
F street, from Ninth to Twelfth	1,160	60	1,578	4,257	.....	.....	.....	.....	.....	1877	1891	Coal tar.
F street, from Twelfth to Thirteenth	400	60	890	1,213	.....	.....	.....	.....	.....	1877	1891	Do.
F street, from Thirteenth to Fifteenth	1,080	60	6,467	.....	.....	.....	.....	.....	.....	1883	1892	Do.
F street, from Seventeenth to Eighteenth	630	40	2,856	.....	.....	.....	.....	.....	.....	1881	.....	

F street, from Twenty-second to Virginia avenue	534	40	2,360						1894		
F street, from Virginia avenue to New Hampshire avenue.	{400 / 800}	35			1,711		*2,964		1894		
F street, from New Hampshire avenue to Twenty-seventh street.	350	35						2,272			
G street, from North Capitol to New Jersey avenue	900	35		3,802					1887		
G street, from New Jersey avenue to Seventh street	2,620	35	3,700	6,873					1872	{1894 / 1878 / 1879 / 1889}	Do.
G street, from Seventh to Ninth	550	40	2,514						1872	1884	Do.
G street, from Ninth to Fifteenth	2,670	40	6,576	6,008					1872	{1878 / 1889 / 1890}	Do.
G street, from Seventeenth to Twenty-second	7,600	36	3,643	6,633					1872	{1887 / 1893}	Do.
G street, from Twenty-second to Twenty-seventh	2,080	36			9,511				1873		
Washington street, between G and H, Fourth and Fifth.	460	35	2,128						1889		
Grant Place, between G and H, Ninth and Tenth streets.	530	24	1,435						1875		
H street, from North Capitol to Fourth	1,800	56	784		8,337				1879		
H street, from Fourth to Seventh	1,590	35		6,381					1887		
H street, from Seventh to Thirteenth	2,300	35	9,067						1872		
H street, from Thirteenth to Fourteenth	530	40	2,144						1872	1886	Do.
H street, from Fourteenth to Fifteenth	430	56	1,735						1884		
H street, from Fifteenth to Vermont avenue	360	56	1,729						1874	1882	Do.
H street, from Vermont avenue to Connecticut avenue.	1,120	50	2,889						1881	1887	Asphalt block.
H street, from Connecticut avenue to Nineteenth street.	1,425	50	5,451						1884		
H street, from Eighteenth to Twenty-second	1,990	32	6,493						1872	1880	Coal tar.
H street, from Twenty-second to Twenty-sixth	1,520	36				4,156			1875		
H street, from Twenty-sixth to Twenty-seventh	375	32				1,066					
Defrees street, between North Capitol and First, H and I.	840	22						†1,967	1886		
I street, from North Capitol to New Jersey avenue	1,150	35		4,557							
I street, from New Jersey avenue to Fifth street	1,560	35	5,804						1884		
I street, from Fifth to Eighth	1,000	32	4,210						1880		
I street, from Eighth to Ninth	250	32	759						1885		
I street, from Ninth to Tenth	580	32	2,090						1879		
I street, from Tenth to Eleventh	300	32	714						1886		
I street, from Eleventh to Thirteenth	670	40	3,700						1872	1878	Do.
I street, from Thirteenth to Fifteenth	1,260	40	4,632						1874		
I street, from Fifteenth to Seventeenth	1,030	48	8,322						1873	{1894 / 1878}	Do.
I street, from Seventeenth to Eighteenth	640	40	2,672						1880		
I street, from Pennsylvania avenue to Twenty-third street.	1,450	38	6,296						1891		Macadamized.
I street, from Twenty-third to Twenty-seventh	1,620	40					7,536		1886		

*Vitrified brick. †Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
I street, from Eighteenth to Pennsylvania avenue	1,300	40	5,327	.....	.....	.....	.....	.....	.....	1886	.....	
K street, from North Capitol to Third	1,630	50	.....	.....	.....	8,822	.....	.....	.....	1874	1894	Cobble.
K street, from third to Seventh	1,820	50	.....	8,384	.....	.....	.....	.....	.....	1874	1878 1889	Coal tar.
K street, from Seventh to Ninth	1,460	53 30	8,215	1,100	.....	.....	.....	.....	.....	1873	1881 1886	Do.
K street, from intersection of Vermont avenue	.....	.....	717	.....	.....	.....	.....	.....	.....	.....	.....	
K street, from Ninth to Eighteenth	4,990	50	.....	27,551	.....	.....	.....	.....	.....	1875	1889 1893	Do.
K street, from Eighteenth to Twenty-third	2,160	50	11,671	.....	619	.....	.....	.....	.....	1880	.....	
K street, from Twenty-third to Twenty-eighth	1,810	.....	.....	.....	12,571	.....	.....	.....	.....	1874	.....	
L street, from North Capitol to New Jersey avenue	1,400	32	4,643	.....	.....	.....	.....	.....	.....	1890	.....	
L street, from New Jersey avenue to Fourth street	550	32	.....	1,592	.....	.....	.....	.....	.....	1877	.....	
L street, from Fourth to Fifth	750	32	.....	.....	2,665	.....	.....	.....	.....	1877	.....	
L street, from Fifth to Sixth	240	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Eighth to Seventeenth	4,040	32	21,203	1,085	.....	.....	.....	.....	.....	1877	1887 1889 1891	Do.
L street, from Connecticut avenue to Twentieth street	1,390	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Sixth to Eighth	740	32	2,645	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Seventeenth to Connecticut avenue	380	.....	.....	1,628	.....	.....	.....	.....	.....	1873	.....	
L street, from Twentieth to Twenty-fifth	2,345	32	8,141	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Twenty-fifth to Twenty-sixth	210	32	483	.....	.....	.....	.....	.....	.....	1889	.....	
L street, from Twenty-sixth to Twenty-seventh	335	32	1,175	.....	.....	.....	.....	.....	.....	1889	.....	
De Sales street, between L and M, Seventeenth and Connecticut avenue.	550	32	.....	2,493	.....	.....	.....	.....	.....	1875	.....	
Pierce street, between L and M, New Jersey avenue and North Capitol street.	1,500	40	5,535	.....	.....	.....	.....	.....	.....	1889	.....	
M street, from North Capitol to First	870	35	3,067	.....	.....	.....	.....	.....	.....	1894	.....	
M street, from First to New Jersey avenue	720	35	2,597	.....	.....	.....	.....	.....	.....	1890	.....	
M street, from New Jersey avenue to Sixth street	1,400	35	5,564	.....	.....	.....	.....	.....	.....	1880	.....	
M street, from Sixth to Fourteenth	1,830	35	13,147	.....	.....	.....	.....	.....	.....	1879	.....	
M street, from Fourteenth to Sixteenth	1,100	40	4,573	.....	.....	.....	.....	.....	.....	1881	.....	
M street, from Sixteenth to Eighteenth	1,460	40	.....	5,851	.....	.....	.....	.....	.....	1873	1878 1889	Do.

M street, from Eighteenth to New Hampshire avenue	1,570	40	6,084							1879	1886	Asphalt.
M street, from New Hampshire avenue to Rock Creek	2,125	40	9,171							1882		
Jefferson street, between M and N, Eighteenth and Nineteenth.	450	27						*1,393		1884		
Ridge street, between M and N, Fourth and Fifth	760	30	2,518							1879		
Ward Place, between New Hampshire avenue and Twenty-second street, M and N.	545	{50 / 25}	1,505							1892		
N street, from North Capitol to New Jersey avenue	1,600	32	5,642							1893		
N street, from New Jersey avenue to Fifth street	890	32	3,311							1890		
N street, from Fifth to Ninth	1,300	32	4,454							1853		
N street, from Ninth to Fourteenth	2,190	32	6,802							1880		
N street, from Fourteenth to Sixteenth	910	32	3,249							1881		
N street, from Sixteenth to New Hampshire avenue	2,245	32		6,556						1873	{1894 / 1878}	Coal tar.
N street, from New Hampshire avenue to Twenty-first street.	260	32		517						1875		
N street, from Twenty-first to Twenty-second	620	32	2,081							1893		
N street, from Twenty-second to Twenty-fourth	710	32	2,196							1892		
N street, from Twenty-fourth to Rock Creek	810	32							2,394			
Sundeland street, between N and O, Nineteenth and Twentieth.	380	30						*1,185		1885		
Morgan street, between M and N, First and Third	380	30	1,307							1892		
O street, from North Capitol to New Jersey avenue	1,830	32							6,172			
O street, from New Jersey avenue to Thirteenth street	3,250	32	4,756	8,905	1,245					1875	1881	Do.
O street, from Thirteenth to Vermont avenue	130	32	481							1883		
O street, from Fifteenth to Sixteenth	520	32		1,663						1875		
O street, from Sixteenth to Seventeenth	520	32	1,697							1883		
O street, from Twentieth to Twenty-first	500	32		2,011						1887		
O street, from Twenty-first to Twenty-second	600	32	2,398							1889		
O street, from Twenty-second to Rock Creek	200	32							693			
P street, from North Capitol to Fourth	1,970	32	7,135							1891		
P street, from Fourth to Ninth	2,030	32	5,166							1884		
P street, from Ninth to Fifteenth	2,560	32	8,156		500					1884		
P street, from Fifteenth to Eighteenth	1,500	32	8,076							1884		
P street, from Eighteenth to Twentieth	450	32		1,569						1873	1878	Do.
P street, from Twentieth to Twenty-second	1,120	40			3,481					1879		
P street, from Twenty-second to Rock Creek	300	40	1,079							1872	{1887 / 1881}	Do.
Madison street, between Seventeenth and Eighteenth, to P and Q.	870	25	2,291							1893		
Sampson street, between Fourteenth and Fifteenth, to P and Q.	690	24	1,733							1890		
Franklin street, between P and Q, to New Jersey avenue and Fifth.	630	30							1,667			
Bates street, between P and Q, to North Capitol and First.	840	25							1,800			
Madison street, between P and Q, to Fifteenth and Seventeenth.	1,040	25		2,674						1875		
Q street, from Florida avenue to Third	1,470	32							6,151			

* Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaedc.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
I street, from Eighteenth to Pennsylvania avenue	1,300	40	5,327	.....	.....	.....	.....	.....	.....	1886	.....	
K street, from North Capitol to Third	1,630	50	.....	.....	.....	8,822	.....	.....	.....	1874	1894	Cobble.
K street, from third to Seventh	1,820	50	.....	8,384	.....	.....	.....	.....	.....	1874	1878 1889	Coal tar.
K street, from Seventh to Ninth	1,460	53 80	8,215	1,100	.....	.....	.....	.....	.....	1873	1881 1886	Do.
K street, from intersection of Vermont avenue	.....	.....	717	.....	.....	.....	.....	.....	.....	.....	.....	
K street, from Ninth to Eighteenth	4,990	50	.....	27,551	.....	.....	.....	.....	.....	1875	1889 1893	Do.
K street, from Eighteenth to Twenty-third	2,160	50	11,671	.....	619	.....	.....	.....	.....	1880	.....	
K street, from Twenty-third to Twenty-eighth	1,810	.....	.....	.....	12,571	.....	.....	.....	.....	1874	.....	
L street, from North Capitol to New Jersey avenue	1,400	32	4,643	.....	.....	.....	.....	.....	.....	1890	.....	
L street, from New Jersey avenue to Fourth street	550	32	.....	1,592	.....	.....	.....	.....	.....	1877	.....	
L street, from Fourth to Fifth	750	32	.....	.....	2,665	.....	.....	.....	.....	1877	.....	
L street, from Fifth to Sixth	240	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Eighth to Seventeenth	4,040	32	21,203	1,085	.....	.....	.....	.....	.....	1877	1887 1889 1891	Do.
L street, from Connecticut avenue to Twentieth street	1,390	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Sixth to Eighth	740	32	2,645	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Seventeenth to Connecticut avenue	380	.....	.....	1,628	.....	.....	.....	.....	.....	1873	.....	
L street, from Twentieth to Twenty-fifth	2,345	32	8,141	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Twenty-fifth to Twenty-sixth	210	32	483	.....	.....	.....	.....	.....	.....	1889	.....	
L street, from Twenty-sixth to Twenty-seventh	335	32	1,175	.....	.....	.....	.....	.....	.....	1889	.....	
De Sales street, between L and M, Seventeenth and Connecticut avenue.	550	32	.....	2,493	.....	.....	.....	.....	.....	1875	.....	
Pierce street, between L and M, New Jersey avenue and North Capitol street.	1,500	40	5,535	.....	.....	.....	.....	.....	.....	1889	.....	
M street, from North Capitol to First	870	35	3,067	.....	.....	.....	.....	.....	.....	1894	.....	
M street, from First to New Jersey avenue	720	35	2,597	.....	.....	.....	.....	.....	.....	1890	.....	
M street, from New Jersey avenue to Sixth street	1,400	35	5,564	.....	.....	.....	.....	.....	.....	1880	.....	
M street, from Sixth to Fourteenth	1,830	35	13,147	.....	.....	.....	.....	.....	.....	1879	.....	
M street, from Fourteenth to Sixteenth	1,100	40	4,573	.....	.....	.....	.....	.....	.....	1881	.....	
M street, from Sixteenth to Eighteenth	1,460	40	.....	5,851	.....	.....	.....	.....	.....	1873	1878 1889	Do.

M street, from Eighteenth to New Hampshire avenue	1,570	40	6,084							1879	1880	Asphalt.
M street, from New Hampshire avenue to Rock Creek	2,125	40	9,171							1882		
Jefferson street, between M and N, Eighteenth and Nineteenth.	450	27						*1,393		1884		
Ridge street, between M and N, Fourth and Fifth	760	30	2,518							1879		
Ward Place, between New Hampshire avenue and Twenty-second street, M and N.	545	{50 / 25}	1,505							1892		
N street, from North Capitol to New Jersey avenue	1,600	32	5,642							1893		
N street, from New Jersey avenue to Fifth street	890	32	3,311							1890		
N street, from Fifth to Ninth	1,300	32	4,454							1853		
N street, from Ninth to Fourteenth	2,190	32	6,802							1880		
N street, from Fourteenth to Sixteenth	910	32	3,249							1881		
N street, from Sixteenth to New Hampshire avenue	2,245	32		6,556						1873	{1894 / 1878}	Coal tar.
N street, from New Hampshire avenue to Twenty-first street.	260	32		517						1875		
N street, from Twenty-first to Twenty-second	620	32	2,081							1893		
N street, from Twenty-second to Twenty-fourth	710	32	2,196							1892		
N street, from Twenty-fourth to Rock Creek	810	32							2,394			
Sundeland street, between N and O, Nineteenth and Twentieth.	380	30						*1,185		1885		
Morgan street, between M and N, First and Third	380	30	1,307							1892		
O street, from North Capitol to New Jersey avenue	1,830	32							6,172			
O street, from New Jersey avenue to Thirteenth street.	3,250	32	4,756	8,905	1,245					1875	1881	Do.
O street, from Thirteenth to Vermont avenue	130	32	481							1883		
O street, from Fifteenth to Sixteenth	520	32		1,663						1875		
O street, from Sixteenth to Seventeenth	520	32	1,697							1883		
O street, from Twentieth to Twenty-first	500	32		2,011						1887		
O street, from Twenty-first to Twenty-second	600	32	2,398							1889		
O street, from Twenty-second to Rock Creek	200	32							693			
P street, from North Capitol to Fourth	1,970	32	7,135							1891		
P street, from Fourth to Ninth	2,030	32	5,166							1884		
P street, from Ninth to Fifteenth	2,560	32	8,156		500					1884		
P street, from Fifteenth to Eighteenth	1,500	32	8,076							1884		
P street, from Eighteenth to Twentieth	450	32		1,569						1873	1878	Do.
P street, from Twentieth to Twenty-second	1,120	40			3,481					1879		
P street, from Twenty-second to Rock Creek	300	40	1,079							1872	{1887 / 1881}	Do.
Madison street, between Seventeenth and Eighteenth, to P and Q.	870	25	2,291							1893		
Sampson street, between Fourteenth and Fifteenth, to P and Q.	690	24	1,733							1890		
Franklin street, between P and Q, to New Jersey avenue and Fifth.	630	30							1,667			
Bates street, between P and Q, to North Capitol and First.	840	25							1,800			
Madison street, between P and Q, to Fifteenth and Seventeenth.	1,040	25		2,674						1875		
Q street, from Florida avenue to Third	1,470	32							6,151			

* Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaedc.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
I street, from Eighteenth to Pennsylvania avenue	1,300	40	5,327	.....	.....	.....	.....	.....	.....	1886	.....	
K street, from North Capitol to Third	1,630	50	.....	.....	.....	8,822	.....	.....	.....	1874	1894	Cobble.
K street, from third to Seventh	1,820	50	.....	8,384	.....	.....	.....	.....	.....	1874	1878 1889	Coal tar.
K street, from Seventh to Ninth	1,460	53 30	8,215	1,100	.....	.....	.....	.....	.....	1873	1881 1886	Do.
K street, from intersection of Vermont avenue	.....	.....	717	.....	.....	.....	.....	.....	.....	.....	.....	
K street, from Ninth to Eighteenth	4,990	50	.....	27,551	.....	.....	.....	.....	.....	1875	1889 1893	Do.
K street, from Eighteenth to Twenty-third	2,160	50	11,671	.....	619	.....	.....	.....	.....	1880	.....	
K street, from Twenty-third to Twenty-eighth	1,810	.....	.....	.....	12,571	.....	.....	.....	.....	1874	.....	
L street, from North Capitol to New Jersey avenue	1,400	32	4,643	.....	.....	.....	.....	.....	.....	1890	.....	
L street, from New Jersey avenue to Fourth street	550	32	.....	1,592	.....	.....	.....	.....	.....	1877	.....	
L street, from Fourth to Fifth	750	32	.....	.....	2,665	.....	.....	.....	.....	1877	.....	
L street, from Fifth to Sixth	240	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Eighth to Seventeenth	4,040	32	21,203	1,085	.....	.....	.....	.....	.....	1877	1887 1889 1891	Do.
L street, from Connecticut avenue to Twentieth street	1,390	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	
L street, from Sixth to Eighth	740	32	2,645	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Seventeenth to Connecticut avenue	380	.....	.....	1,628	.....	.....	.....	.....	.....	1873	.....	
L street, from Twentieth to Twenty-fifth	2,345	32	8,141	.....	.....	.....	.....	.....	.....	1883	.....	
L street, from Twenty-fifth to Twenty-sixth	210	32	483	.....	.....	.....	.....	.....	.....	1889	.....	
L street, from Twenty-sixth to Twenty-seventh	335	32	1,175	.....	.....	.....	.....	.....	.....	1889	.....	
De Sales street, between L and M, Seventeenth and Connecticut avenue.	550	32	.....	2,493	.....	.....	.....	.....	.....	1875	.....	
Pierce street, between L and M, New Jersey avenue and North Capitol street.	1,500	40	5,535	.....	.....	.....	.....	.....	.....	1889	.....	
M street, from North Capitol to First	870	35	3,067	.....	.....	.....	.....	.....	.....	1894	.....	
M street, from First to New Jersey avenue	720	35	2,597	.....	.....	.....	.....	.....	.....	1890	.....	
M street, from New Jersey avenue to Sixth street	1,400	35	5,564	.....	.....	.....	.....	.....	.....	1880	.....	
M street, from Sixth to Fourteenth	1,830	35	13,147	.....	.....	.....	.....	.....	.....	1879	.....	
M street, from Fourteenth to Sixteenth	1,100	40	4,573	.....	.....	.....	.....	.....	.....	1881	.....	
M street, from Sixteenth to Eighteenth	1,460	40	.....	5,851	.....	.....	.....	.....	.....	1873	1878 1889	Do.

M street, from Eighteenth to New Hampshire avenue	1,570	40	6,084							1879	1886	Asphalt.
M street, from New Hampshire avenue to Rock Creek	2,125	40	9,171							1882		
Jefferson street, between M and N, Eighteenth and Nineteenth.	450	27						*1,393		1884		
Ridge street, between M and N, Fourth and Fifth	760	30	2,518							1879		
Ward Place, between New Hampshire avenue and Twenty-second street, M and N.	545	50 / 25	1,505							1892		
N street, from North Capitol to New Jersey avenue	1,600	32	5,642							1893		
N street, from New Jersey avenue to Fifth street	890	32	3,311							1890		
N street, from Fifth to Ninth	1,300	32	4,454							1853		
N street, from Ninth to Fourteenth	2,190	32	6,802							1880		
N street, from Fourteenth to Sixteenth	910	32	3,249							1881		
N street, from Sixteenth to New Hampshire avenue	2,245	32		6,556						1873	1894 / 1878	Coal tar.
N street, from New Hampshire avenue to Twenty-first street.	260	32		517						1875		
N street, from Twenty-first to Twenty-second	620	32	2,081							1893		
N street, from Twenty-second to Twenty-fourth	710	32	2,196							1892		
N street, from Twenty-fourth to Rock Creek	810	32							2,394			
Sundeland street, between N and O, Nineteenth and Twentieth.	380	30						*1,185		1885		
Morgan street, between M and N, First and Third	380	30	1,307							1892		
O street, from North Capitol to New Jersey avenue	1,830	32							6,172			
O street, from New Jersey avenue to Thirteenth street	3,250	32	4,756	8,905	1,245					1875	1881	Do.
O street, from Thirteenth to Vermont avenue	130	32	481							1883		
O street, from Fifteenth to Sixteenth	520	32		1,663						1875		
O street, from Sixteenth to Seventeenth	520	32	1,697							1883		
O street, from Twentieth to Twenty-first	500	32		2,011						1887		
O street, from Twenty-first to Twenty-second	600	32	2,398							1889		
O street, from Twenty-second to Rock Creek	200	32							693			
P street, from North Capitol to Fourth	1,970	32	7,135							1891		
P street, from Fourth to Ninth	2,030	32	5,166							1884		
P street, from Ninth to Fifteenth	2,560	32	8,156		500					1884		
P street, from Fifteenth to Eighteenth	1,500	32	8,076							1884		
P street, from Eighteenth to Twentieth	450	32		1,569						1873	1878	Do.
P street, from Twentieth to Twenty-second	1,120	40			3,481					1879		
P street, from Twenty-second to Rock Creek	300	40	1,079							1872	1887 / 1881	Do.
Madison street, between Seventeenth and Eighteenth, to P and Q.	870	25	2,291							1893		
Sampson street, between Fourteenth and Fifteenth, to P and Q.	690	24	1,733							1890		
Franklin street, between P and Q, to New Jersey avenue and Fifth.	630	30							1,667			
Bates street, between P and Q, to North Capitol and First.	840	25							1,800			
Madison street, between P and Q, to Fifteenth and Seventeenth.	1,040	25		2,674						1875		
Q street, from Florida avenue to Third	1,470	32							6,151			

* Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Q street, from Third to New Jersey avenue	420	32	1,812	.....	.....	.....	.....	.....	.....	1890	.....	
Q street, from New Jersey avenue to Fifth	560	32	2,031	.....	.....	.....	.....	.....	.....	1888	.....	
Q street, from Fifth to Sixth	270	32	833	.....	.....	.....	.....	.....	.....	1890	.....	
Q street, from Sixth to Rhode Island avenue	1,460	32	.....	4,759	.....	.....	.....	.....	.....	1887	.....	
Q street, from Rhode Island avenue to Vermont avenue	900	32	.....	2,453	.....	.....	.....	.....	.....	1889	.....	
Q street, from Vermont avenue to Fourteenth	850	32	2,806	.....	.....	.....	.....	.....	.....	1883	.....	
Q street, from Fourteenth to Sixteenth	1,250	32	2,338	2,468	.....	.....	.....	.....	.....	1874	{1886 / 1891}	Coal tar.
Q street, from Sixteenth to Seventeenth	550	32	.....	2,301	.....	.....	.....	.....	.....	1875	1889	
Q street, from Seventeenth to Nineteenth	1,400	32	4,904	.....	.....	.....	.....	.....	.....	1888	.....	Do.
Q street, from Nineteenth to Twentieth	360	32	.....	862	.....	.....	.....	.....	.....	1873	{1873 / 1882}	
Q street, from Twentieth to Twenty-second	970	32	.....	2,541	.....	.....	.....	.....	.....	1886	.....	
Q street, from Twenty-first to Massachusetts avenue	80	.....	.....	883	.....	.....	.....	.....	.....	1875	.....	
Hillyer street, between Q and R, to Twentieth and Twenty-first.	470	27	.....	.....	.....	.....	.....	*1,552	.....	1884	.....	
Warner street, between New Jersey avenue and Fifth, to Q and R.	470	25	.....	.....	.....	.....	.....	.....	1,333	.....	.....	
Corcoran street, between Thirteenth and Fourteenth, to Q and R.	554	30	.....	2,067	.....	.....	.....	.....	.....	1887	.....	
Corcoran street, between Fourteenth and Fifteenth, to Q and R.	630	30	.....	2,129	.....	.....	.....	.....	.....	1875	.....	
Corcoran street, between Fifteenth and New Hampshire avenue, to Q and R.	1,820	30	4,851	.....	.....	.....	.....	.....	.....	1888	.....	
Corcoran street, between Eighteenth and Nineteenth, to Q and R.	470	30	1,163	.....	.....	.....	.....	.....	.....	1890	.....	
R street, from Florida avenue to Seventh	2,410	32	7,551	.....	.....	.....	.....	.....	.....	1890	.....	
R street, from Seventh to Ninth	530	32	.....	1,602	.....	.....	.....	.....	.....	1880	1894	Do.
R street, from Ninth to Fourteenth	2,220	32	7,638	.....	.....	.....	.....	.....	.....	1884	.....	
R street, from Fourteenth to Sixteenth	1,250	32	.....	4,502	.....	.....	.....	.....	.....	1875	.....	
R street, from Sixteenth to New Hampshire avenue	1,140	32	3,918	.....	.....	.....	.....	.....	.....	1890	.....	
R street, from New Hampshire avenue to Twentieth street.	1,150	32	3,498	.....	.....	.....	.....	.....	.....	1891	.....	

R street, from Twentieth to Twenty-first	400	32		1,411						1887		
R street, from Twenty-first to Florida avenue	250	32	735							1893		
Riggs street, between R and S, to Eighteenth and Nineteenth.	450	32							1,300			
Riggs street, between R and S, to Sixteenth and Seventeenth.	500	30	1,620							1891		
Riggs street, between R and S, to Thirteenth and Fourteenth.	625	30						2,030		1886		
French street, between R and S, to Ninth and Tenth	520	30	1,692							1889		
Riggs street, between R and S, to New Hampshire avenue and Eighteenth street.	425	25							1,180			
S street, from Florida avenue to Seventh street	1,300	32	4,539							1894		
S street, from Seventh to Eleventh	1,400	32		5,047						1889		
S street, from Eleventh to Fourteenth	1,300	32	4,240	995						1875	{1891 / 1894}	Do.
S street, from Fourteenth to Sixteenth	1,160	32	1,757	2,457						1873	1889	Do.
S street, from Sixteenth to New Hampshire avenue	735	32	2,681							1889		
S street, from New Hampshire avenue to Twentieth street.	1,560	32	5,195							1894		
S street, from Twentieth to Connecticut avenue	300	32	1,077							1889		
Oregon street, between S and T, to New Hampshire avenue and Twentieth street.	1,560								2,433			
Pierce street, between S and T, to Fourteenth and Fifteenth.	690	30	2,154							1873	1886	Do.
Pierce street, between S and T, to Fifteenth and Sixteenth.	520	30	1,366							1893		
Pierce street, between S and T, to Sixteenth and Seventeenth.	520	40							1,320			
Westminster street, between S and T, to Ninth and Tenth.	535	30	1,749							1893		
T street, from Florida avenue to Ninth street	800	32					2,667			1876		
T street, from Ninth to Tenth	535	32	1,766							1891		
T street, from Tenth to Fourteenth	1,600	32	4,256							1893		
T street, from Fourteenth street to Florida avenue	1,850	32					10,451					
Willard street, between T and U, to Seventeenth and Eighteenth.	870	25							2,360			
Carolin estreet, between T and U, to Fifteenth and Sixteenth.	520	24	1,325							1891		
Wallach street, between T and U, to Thirteenth and Fourteenth	610	30						*2,075		1886		
U street, from Ninth to Tenth	570	32	2,301							1891		
U street, from Tenth to Fourteenth	1,560	32	4,808							1893		
U street, from Fourteenth to Sixteenth	1,150	32	3,310							1891		
U street, from Sixteenth street to Florida avenue	1,220	30							4,491			
Seaton street, between U and V, to Seventeenth and Eighteenth.	560	29							1,822			
V street, from Vermont avenue to Florida avenue	4,100	30							13,325			
W street, from Florida avenue to Florida avenue	2,470	30							6,691			

*Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and Concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Connecticut avenue, from H street to Florida avenue	4,090	50	9,981	26,265						1873	1878 1884 1886	Coal tar.
Florida avenue, from Massachusetts avenue to Ninth street.	9,100	46					48,300			1875 1876		
Florida avenue, from Ninth street to Seventh	650	45			2,304					1874		
Florida avenue, from Seventh street to New Jersey avenue.	1,250	46	7,208							1888		
Florida avenue, from New Jersey avenue to Fourth street.	600	46	3,405							1890		
Florida avenue, from Fourth street to First	1,320	46					6,563					
Florida avenue, from First street to North Capitol	950								4,907			
Indiana avenue, from First street to Third	1,640	35	8,530							1887		
Louisiana avenue, from Third street to Seventh	1,260	60	4,054		9,243					1881		
Louisiana avenue, from Eighth street to Ninth	200				1,137					1879		
Louisiana avenue, from intersection to Seventh street and C.	200							3,214		1880		
Louisiana avenue, from Ninth street to Tenth	570	78½			4,765					1872		
Massachusetts avenue, from North Capitol street to New Jersey avenue.	800	50		5,143						1887		
Massachusetts avenue, from New Jersey avenue to Third street.	800	50	3,858							1882	1891	Asphalt.
Massachusetts avenue, from Third street to Seventh	2,000	50	3,121	785						1881	1889	South side asphalt; north side coal tar.
Massachusetts avenue, from Fourth street to Seventh	1,670	50	3,108							1883		
Massachusetts avenue, from Ninth to Thirteenth street	1,650	50	9,920							1880		
Massachusetts avenue, from Thirteenth to Fourteenth street.	550	50	2,991							1877	1884	Coal tar.
Massachusetts avenue, around Thomas Circle	816	50	6,000							1877		
Massachusetts avenue, from Fourteenth to Twentieth street.	3,200	50	3,079	10,819						1873	1893	Do.
Massachusetts avenue, around Scott Square	565			12,560						1877		

Massachusetts avenue, from Twentieth street to Florida avenue.		50		5,817						1875	
Massachusetts avenue, intersection of Fourth street		50		742						1877	
Massachusetts avenue, intersection of Fifth street		50		498						1877	
Highland Terrace, from Fourteenth to Fifteenth street.	600			1,248						1873	
Missouri avenue, from Third to Four-and-a-half street	674	35			2,562					1884	
Missouri avenue, from Four-and-a-half to Sixth street	650	35				1,081		1,371		1872 1894	
New Hampshire avenue, from Twenty-seventh to G street.	900	50				5,000					
New Hampshire avenue, from G street to Pennsylvania avenue.	1,630	50				7,967					
New Hampshire avenue, from Pennsylvania avenue to M street.	980	50	6,992							1879	
New Hampshire avenue, from M to P street	1,750	50	10,047							1882	
New Hampshire avenue, from P to Q street	400	50	2,538							1885	
New Hampshire avenue, from Q to R street	650	50	4,164							1888	
New Hampshire avenue, from R to T street	1,340	50	8,809							1889	
New Hampshire avenue, from T to V street	1,100	50	6,805							1890	
New Hampshire avenue, from V street to Florida avenue.	500	50							2,688		
New Hampshire avenue, around Dupont Circle	1,350			2,446						1873	
New Jersey avenue, from B to C street	570	50	1,635	1,235						1877	1885 Do.
New Jersey avenue, from C to D street	400	50		2,385						1877	1883 Coal tar (west side).
New Jersey avenue, from C to D street	400	50			1,177					1877	
New Jersey avenue, from D to L street	2,350	50	21,463							1882	
New Jersey avenue, from L street to New York avenue.	600	50	3,969							1884	
New Jersey avenue, from New York to Florida avenue.	3,420	50		18,127						1887	
New York avenue, from New Jersey avenue to North Capitol street.	1,720	50	5,604							1890	
New York avenue, from New Jersey avenue to Seventh street.	2,150	50	9,229							1889	
New York avenue, from Ninth to Fifteenth street	4,520	50	6,969	15,348						1872	1878 1875 Coal tar.
New York avenue, from Fourteenth to Fifteenth street.	450	86		1,863						1872	1887 1885 Do.
New York avenue, from Thirteenth to Fourteenth street.	600	50	2,170							1891	
New York avenue, from Seventeenth to Eighteenth street.	630	50		3,509						1873	1878 Asphalt.
New York avenue, from Eighteenth to Nineteenth street.		50									
New York avenue, from Nineteenth to Twenty-third street.	1,980	50							11,388		
Ohio avenue, from Twelfth to Fifteenth street	1,030	60				11,355				1872 1874	
Pennsylvania avenue, from First to Sixth street	2,250	108½	25,322							1887	1890 Asphalt.
Pennsylvania avenue, from Sixth to Fifteenth street	4,120	108½	53,199							1876 1877	1890 Do.
Pennsylvania avenue, from Fifteenth to Eighteenth street.	2,340	85	17,017							1871	1878 1880 Coal tar.
Pennsylvania avenue, from Eighteenth to Twenty-third street.	2,370	80		10,078						1875	1894 1889 Coal tar, north and south side.
Pennsylvania avenue, from Eighteenth to Twenty-third street.		80	3,909	11,398						1875	

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Pennsylvania avenue, from Twenty-third street to Rock Creek.	1,500	80	7,830	4,923	.....	.....	.....	.....	.....	1877	1894 1888	Coal tar.
Pennsylvania avenue, around Washington Circle	1,256	.....	6,083	.....	.....	.....	.....	.....	.....	1880	.....	
Rhode Island avenue, from Connecticut avenue to Scott Circle.	1,280	50	.....	5,411	.....	.....	.....	.....	.....	1873	1893	Do.
Rhode Island avenue, from Scott Circle to Thirteenth street.	1,690	50	7,723	.....	.....	.....	.....	.....	.....	1881	.....	
Rhode Island avenue, from Thirteenth to Ninth street.	1,200	.....	9,219	.....	.....	.....	.....	.....	.....	1882	.....	
Rhode Island avenue, from Ninth to Fifth street	1,300	.....	8,120	.....	.....	.....	.....	.....	.....	1883	.....	
Rhode Island avenue, from Fifth street to New Jersey avenue.	320	50	2,313	.....	.....	.....	.....	.....	.....	1888	.....	
Rhode Island avenue, from New Jersey to Florida avenue.	220	50	.....	.....	.....	.....	.....	.....	2,313	.....	.....	
Virginia avenue, from B street to Rock Creek	5,400	50	.....	.....	.....	.....	.....	.....	30,277	.....	.....	
Vermont avenue, from H to I street	400	50	4,156	.....	.....	.....	.....	.....	.....	1872	1880	Do.
Vermont avenue, from K to M street	1,060	50	6,537	.....	.....	.....	.....	.....	.....	1872	1878 1872 1894	Do.
Vermont avenue, from M to P street	1,200	50	6,150	190	.....	.....	.....	.....	.....	1873	1893	Do.
Vermont avenue, from P to R street	980	50	6,103	.....	.....	.....	.....	.....	.....	1881	.....	
Vermont avenue, from R to T street	980	50	.....	.....	.....	.....	4,853	.....	.....	.....	.....	
Vermont avenue, from T street to Florida avenue	980	50	.....	.....	.....	.....	.....	.....	6,424	.....	.....	
SOUTHWEST.												
South Capitol street, from B (west side) to Canal	1,450	50	.....	.....	.....	.....	.....	.....	3,419	.....	.....	
South Capitol street, from Canal (west side) to H	1,050	50	.....	.....	2,827	.....	.....	.....	.....	1894	.....	
South Capitol street, from H (west side) to M	1,300	50	.....	.....	.....	.....	.....	.....	3,594	.....	.....	
South Capitol street, from M (west side) to N	600	.....	.....	.....	.....	1,623	.....	.....	.....	.....	.....	

South Capitol street, from N (west side) to river	2,300								6,166		
Half street, from Virginia avenue to river	5,800	32							18,844		
Augusta street, between Half to First, R to S	420	20							890		
First street, from center Botanical Garden to Maryland avenue.	400	53	2,270							1873	
First street, from Maryland avenue to Virginia avenue	2,020	35			6,722					1873	
First street, from Virginia avenue to M street	2,300	35			11,198					1876	
First street, from M to N	700	32				2,314					
First street, from N to river	3,700	32							13,160		
Second street, from Maryland avenue to C street	550	45 / 32	2,224							1892	
Second street, from C to F	1,200	32	5,690							1892	
Second street, from F to L	1,500	32					5,886			1889	
Second street, from L to river	4,100	32							11,913		
Third street, from center Botanical Garden to B	850	40			3,835					1881	
Third street, from B to Virginia avenue	1,300	40	5,890							1884	
Third street, from Virginia avenue to F street	480	40	2,088							1885	
Third street, from F to P	3,420								12,750		
Four-and-a-half street, from center of Mall to Maine avenue.	450	55	1,143							1883	
Four-and-a-half street, from Maine avenue to Maryland avenue.	420	55	4,833							1890	
Four-and-a-half street, from Maryland avenue to H street.	2,650	55			12,851					1882	
Four-and-a-half street, from H to P	3,070	55			14,566					1889	
Union street, from Four-and-a-half to Sixth, between M and O.	1,230	40				5,333					
Sixth street, from center of Mall to C street	1,250	66				5,667					
Sixth street, from C to river	4,530	40			18,700					1873	
Six-and-a-half street, from Sixth to Seventh, between D and E.	550	28							1,548		
Seventh street, from center of Mall to Water street	5,200	51			19,839					1877	
Eighth street, from B to C	400	35	1,434							1890	
Eighth street, from C to E	910	35	3,035							1893	
Eighth street, from E to Water	1,700	35							6,600		
Ninth street, from B to C	410	32	1,458							1889	
Ninth street, from C to D	520	32				655					
Ninth street, from D to Water	2,100	32			7,061					1883	
Tenth street, from B to Maryland avenue	730	32						2,411		1886	
Tenth street, from Maryland avenue to river	1,500	32				5,000					
Eleventh street, from B to river	1,950	40			10,511					1873	
Twelfth street, from B to river	1,870	40			8,444					1872	
Twelfth street, from center of Mall to B street	760	40			3,735					1873	
Thirteenth street, from B to Maryland avenue	1,180	40	5,705							1876	
Thirteenth street, from Maryland avenue to Water street.	470	40							2,088		
Thirteen-and-a-half street, from B to Maryland avenue	1,250	32				4,291				1875	
Thirteen-and-a-half street, from Maryland avenue to river.	250	32							900		
Fourteenth street, from center of Mall to B street	600	40			3,920						
Fourteenth street, from B to Maryland avenue	1,420	40			6,574					1893	
Fifteenth street, from B to river	1,020	32							2,625		
B street, from South Capitol to First	840	35			4,486					1873	

Statement of character and extent of street pavements, July 1, 1894—Continued.

SOUTHWEST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
B street, from First to Maryland avenue	1,340	35	.....	.....	5,305	.....	.....	.....	.....	1884	.....	
B street, from Sixth to Fourteenth	3,280	32	.....	12,840	.....	.....	.....	.....	.....	1879	.....	
B street, from Fourteenth to Fifteenth	420	32	.....	.....	.....	.....	.....	.....	1,707	.....	.....	
C street, from South Capitol to First	820	32	3,971	.....	.....	.....	.....	.....	.....	1889	.....	
C street, from First to Four-and-a-half	1,440	35	.....	5,941	.....	.....	.....	.....	.....	1887	.....	
C street, from Four-and-a-half to Sixth	570	35	.....	2,273	.....	.....	.....	.....	.....	1887	.....	
C street, from Sixth to Seventh	600	35	.....	.....	1,831	.....	.....	.....	.....	1887	.....	
C street, from Ninth to Twelfth	850	35	.....	.....	.....	.....	.....	3,223	.....	1885	.....	
C street, from Seventh to Ninth	1,080	35	.....	.....	4,800	.....	.....	.....	.....	.....	.....	
C street, from Twelfth to Fourteenth	840	35	.....	.....	.....	.....	.....	3,848	.....	1888	.....	
C street, from Fourteenth to Fifteenth	420	35	.....	.....	.....	.....	.....	.....	1,707	.....	.....	
D street, from South Capitol to First	820	35	4,329	.....	.....	.....	.....	.....	.....	1889	.....	
D street, from First to Third	800	35	2,905	.....	.....	.....	.....	.....	.....	1891	.....	
D street, from Third to Four-and-a-half	620	35	.....	2,363	.....	.....	.....	.....	.....	1887	.....	
D street, from Four-and-a-half to Fourteenth	3,100	35	.....	.....	.....	10,815	.....	.....	.....	.....	.....	
D street, from Fourteenth to Fifteenth	420	35	.....	.....	.....	.....	.....	.....	1,707	.....	.....	
School street, from D and E to Four-and-a-half and Sixth	600	34	.....	.....	.....	2,346	.....	.....	.....	.....	.....	
E street, from South Capitol to First	750	35	3,104	.....	.....	.....	.....	.....	.....	1890	.....	
E street, from Virginia avenue to Third street	420	35	.....	1,580	.....	.....	.....	.....	.....	1887	.....	
E street, from Third to Four-and-a-half	600	35	.....	2,371	.....	.....	.....	.....	.....	1886	.....	
E street, from Four-and-a-half to Seventh	1,070	35	4,286	.....	.....	.....	.....	.....	.....	1880	.....	
E street, from Seventh to Thirteenth	1,890	35	6,867	.....	.....	.....	.....	.....	.....	1892	.....	
E street, from Thirteenth to Water	450	35	.....	.....	.....	.....	.....	.....	2,007	.....	.....	
F street, from Four-and-a half to Seventh	1,870	35	4,315	.....	.....	.....	.....	.....	.....	1874	.....	
F street, from Seventh to Twelfth	1,570	35	.....	.....	.....	6,838	.....	.....	.....	1872	.....	
F street, from Half to Four-and-a-half	2,000	35	.....	.....	6,777	.....	.....	.....	.....	1882	.....	
G street, from South Capitol to Third	1,600	35	.....	.....	6,517	.....	.....	.....	.....	1891	.....	
G street, from Third to Four-and-a-half	1,600	35	.....	2,476	.....	.....	.....	.....	.....	1888	.....	
G street, from Four-and-a-half to Eighth	1,320	35	5,733	.....	.....	.....	.....	.....	.....	1874	1881	Coal tar.
G street, from Eighth to Water	1,000	35	5,050	.....	.....	.....	.....	.....	.....	1875	1881	Do.
H street from South Capitol to Delaware avenue	750	35	.....	.....	.....	.....	.....	.....	2,320	.....	.....	
H street, from Delaware avenue to Third street	800	35	4,111	.....	.....	.....	.....	.....	.....	1889	.....	
H street, from Third to Four-and-a-half	650	35	.....	2,407	.....	.....	.....	.....	.....	1887	.....	

H street, from Four-and-a-half to Seventh	1,070	35	4,327							1881		
H street, from Seventh to Ninth	530	30	2,138							1883		
H street, from Ninth to Water	460	35			1,581					1883		
I street, from South Capitol to Water	2,960	35							12,746			
K street, from South Capitol to Canal	340	35			900				886			
K street, from Canal to First	400	35			1,706					1894		
K street, from First to Water	2,760						11,108			1890		
L street, from South Capitol to Four-and-a-half	2,280	35							9,648			
L street, from Four-and-a-half to Water	1,050	35					4,331			1889		
M street, from South Capitol to Four-and-a-half	2,250	35				12,930				1876		
M street, from Four-and-a-half to Water	1,000	35			1,882					1891		
Robinson street, from L and M to Sixth and Water	350	25							945			
Van street, from M and N to Third and Four-and-a-half	620								1,380			
N street, from South Capitol to Sixth	2,720	35				15,463				{1883} {1876}		
McLean street, from N and O to Third and Four-and-a-half	630	30						*2,127		1887		
O street, from South Capitol to Water	2,710	32							8,530			
P street, from South Capitol to Four-and-a-half	3,310	30							6,945			
Q street, from South Capitol to Canal	1,300	30							4,367			
R street, from South Capitol to Canal	1,200	30							4,900			
S street, from South Capitol to Canal	1,200	30							4,900			
T street, from Half to Canal	1,200	30							3,620			
U street, from Eastern Branch to Canal	1,200	30							3,633			
V street, from Eastern Branch to Canal	700	30							2,000			
Canal street, from B to E	3,650	(†)			5,186				13,587	1891		
Water street, from P to Sixth	640	50			3,600					1876		
Water street, from Sixth to Seventh	1,500	50			8,000					1884		
Water street, from Seventh to Twelfth	2,400	50			14,000					1872		
Water street, from Twelfth to Thirteen-and-a-half	800	50			4,450					1880		
Delaware avenue, from B to G	2,000	50			2,056							
Delaware avenue, from G to P	3,100	50							18,888			
Maine avenue, from Third to Sixth	1,220	35				4,635				1872		
Maryland avenue, from First to Third	750	60	3,394							1883		
Maryland avenue, from Third to Seventh	1,820	60				12,803				1873		
Maryland avenue, from Ninth to Water	4,700	60			29,050					1875		
Virginia avenue, from South Capitol to Four-and-a-half	2,400								13,580			
Virginia avenue, from Four-and-a-half to Seventh	1,170				1,722							
Virginia avenue, from Ninth to Twelfth	1,320				3,836					1881		
Georgia avenue, from South Capitol to Canal	1,800	50							8,888			

SOUTHEAST.

South Capitol street, from B (east half) to Canal	1,450	50							3,419			
South Capitol street, from Canal to H	1,050	50			2,827					1894		
South Capitol street, from H to M	1,300	50							3,594			

* Permit work.

† Two roadways, 40 feet each.

Statement of character and extent of street pavements, July 1, 1894—Continued.

SOUTHEAST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
South Capitol street, from M to N	600	50				1,623						
South Capitol street, from N to river	2,300	50							6,166			
Half street, from Virginia avenue to river	3,400	32							11,380			
First street, from East Capitol to B	760	35	4,412							1873	1879	Coal tar.
First street, from B to C	500	38			2,152					1880		
First street, from C to D	400	35						1,260		1889		
First street, from D to river	3,750	35							12,100			
Heckman street, from First and Second to public square	640	30							2,100			
Second street, from East Capitol to Pennsylvania avenue	700	32	2,311							1881		
Second street, from Pennsylvania avenue to D	1,200	35	4,906							1882		
Second street, from D to Virginia avenue	800	32					2,888		3,932			
Second street, from Virginia avenue to I	450	32					1,216			1892		
Second street, from I to river	2,000	32							4,620			
Third street, from East Capitol to Pennsylvania avenue	910	32	3,521							1884		
Third street, from Pennsylvania avenue to C	310	32						987		1887		
Third street, from C to D	620	32			2,572					1882		
Third street, from D to Virginia avenue	1,440	32			5,030					1876		
Third street, from Virginia avenue to K	650	32			2,464					1890		
Third street, from K to L	270	32					800					
Third street from L to Georgia avenue	1,250	32				4,461			858	1877		
Fourth street, from East Capitol to Pennsylvania avenue	1,100	53						4,152		1883		
Fourth street, from Pennsylvania avenue to North Carolina avenue	200	35						593		1890		
Fourth street, from North Carolina avenue to river	4,030	35				16,760				1876		
Fifth street, from East Capitol to Pennsylvania avenue	1,140	40	4,916							1882		
Fifth street, from intersection of C								693		1890		
Fifth street, from Pennsylvania avenue to E	750	32	2,570							1894		
Fifth street, from E to river	3,000	32							10,585			
Sixth street, from East Capitol to Pennsylvania avenue	1,390	35						5,949		1886		
Sixth street, from Penusylvania avenue to E	730	35						4,399		1887		
Sixth street, from E to Virginia avenue	1,330	35						4,775		1889		
Sixth street, from Virginia avenue to K	300	35							926			

Seventh street, from East Capitol to Pennsylvania avenue.	1,730	32						7,223		1887	
Seventh street, from D to Virginia avenue	2,100	35						8,394		1889	
Seventh street, from Virginia avenue to M	750	32					1,785			1890	
Eighth street, from East Capitol to B	475	40							2,200		
Eighth street, from B to D	1,045	40	4,765							1894	
Eighth street, from D to K	2,200	55	9,182							1884	
Eighth street, from K to M	720	55	2,929							1883	
Ninth street, from East Capitol to I	4,220	32					11,423			1890	
Ninth street, from I to Eastern Branch	2,490	32							8,366		
Tenth street, from East Capitol to D	1,800	32					4,000			1890	
Tenth street, from D to Pennsylvania avenue	1,270							788		1891	
Tenth street, from Pennsylvania avenue to Eastern Branch.	5,840								12,500		
Eleventh street, from East Capitol to C	1,480	48						8,076		1891	
Eleventh street, from C to Pennsylvania avenue	1,208	48						7,006		1893	
Eleventh street, from Pennsylvania avenue to bridge	3,900	40			15,451					1889	
Eleventh street, from M to river	6,250	56			4,367						
Twelfth street, from Lincoln Square to river	5,6 0	35							17,956		
Thirteenth street, from East Capitol to D	2,050	35							6,644		
Thirteenth street, from D to Pennsylvania avenue	800	35					2,638				
Thirteenth street, from Pennsylvania avenue to river	2,450	35							9,538		
Fourteenth street, from East Capitol to river	4,700	35							14,791		
Fifteenth street, from East Capitol to river	4,500	35							13,796		
Sixteenth street, from East Capitol to Kentucky avenue	3,300	35							8,788		
Seventeenth street, from East Capitol to river	3,300	35							12,089		
Eighteenth street, from East Capitol to Congressional Cemetery.	2,300	35							8,107		
Nineteenth street, from East Capitol to Congressional Cemetery.	2,300	35							8,107		
Twentieth street, from East Capitol to B	700	35							2,560		
Twenty-first street, from East Capitol to B	700	35							2,560		
Twenty-second street, from East Capitol to B	700	35							2,560		
Twenty-third street, from East Capitol to B	700	35							2,560		
East Capitol street, from First (south half) to Fourth	1,500	50	2,736							1879	1889	Asphalt.
East Capitol street, from Fourth to Ninth	1,900	50	5,028							1879	1890	Do.
East Capitol street, from Ninth to Eleventh	600	50	1,786							1883		
East Capitol street, from Lincoln Square to Eastern Branch.	4,280	50							12,941			
A street, from Second to Third	440	35	1,724							1881		
A street, from Third to Sixth	950	35						3,317		1886		
A street, from Sixth to Seventh	600	35						2,391		1887		
A street, from Seventh to Ninth	800	33						3,043		1894		
A street, from Massachusetts avenue to Eastern Branch	4,000	33							11,800			
A street, south side, to Lincoln Square	850	35					4,398					
B street, from South Capitol to New Jersey avenue	300	45			370							
B street, from New Jersey avenue to Second street	1,300	35	6,887							1873	1891	Coal tar.
B street, from Second to Fifth	970	35	3,810							1881		
B street, from Fifth street to North Carolina avenue	870	35		3,154						1887		
B street, from North Carolina avenue to Eleventh street	1,340	35						4,577		1891		
B street, from Eleventh to Nineteenth	3,600	35					16,455			1891		
B street, from Nineteenth street to Eastern Branch	1,400	25							4,622			

Statement of character and extent of street pavement, July 1, 1894—Continued.

SOUTHEAST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Carroll street, between B and C, First and Second	650	24	1,416							1893		
C street, from South Capitol to New Jersey avenue	360	32	948							1889		
C street, from New Jersey avenue to Fourth street	1,960	32						6,922		1884		
C street, from Fourth to Sixth	520	32						1,464		1890		
C street, from Sixth to Seventh	600	32						2,142		1890		
C street, from Fourth to Sixth	500	32						1,614		1891		
C street, from Seventh to Eleventh	1,200	32					4,573			1889		
C street, from Eleventh to Nineteenth	4,000	32							14,400			
D street, from South Capitol to First	454	35	3,274							1893		
D street, from First to Third	970	35						4,394		1889		
D street, from Third to Sixth	980	35						3,860		1890		
D street, from Sixth to Seventh	580	35				1,890				1874		
D street, from Ninth street to Pennsylvania avenue	1,000	35						1,951		1892		
D street, from Pennsylvania avenue to Nineteenth street	4,550	35							17,810			
D street, from Second to (south side) Third	370	35	1,454							1890		
Ivy street, from D and E to New Jersey avenue and South Capitol.	530	34							2,131			
E street, from South Capitol to Third	1,900	35							3,703			
E street, from Third street to Pennsylvania avenue	2,950	35					12,486			1885		
E street, from Pennsylvania avenue to Thirteenth street	720	35	4,511							1893		
E street, from Thirteenth to Nineteenth	3,200	35							9,245			
G street, from Third to Eleventh	2,950	36					7,627			1885		
G street, from Eleventh to Pennsylvania avenue	850	36						1,730		1891		
G street, from Pennsylvania avenue to Seventeenth street	1,875	36				2,387	3,737			1893		
I street, from South Capitol to Second	1,500	35							3,693			
I street, from Second to Third	400	35					1,220			1892		
I street, from Third to Eighth	1,820	35					5,563			1891		
I street, from Eighth to Georgia avenue	1,800	35							7,000			*
K street, from South Capitol to Eastern Branch	7,600	{60 / 35}							27,223			
L street, from South Capitol to Eastern Branch	7,600	35							27,533			
Van street, between New Jersey avenue and First, M, and N.	550	25							1,445			

M street, from South Capitol to Fourth	2,400	35				8,944			6,327			
M street, from Fourth to Eastern Branch	4,600					8,454			1,555			
Quander street, between M and N, New Jersey avenue and First.	440	25										
N street, from South Capitol to Third	2,030	35				4,057			5,202			
N street, from Third to Twelfth	1,600	35							3,200			
O street, from South Capitol to Eastern Branch	2,400	35							1,667			
Walter street, between B and C, Twelfth and Thirteenth.	510	30							35,556			
Georgia avenue, from South Capitol to Nineteenth	10,700	50							24,445			
Kentucky avenue, from Lincoln Square to Eastern Branch	4,350	50							19,500			
Massachusetts avenue, from Thirteenth to Nineteenth.	3,600	50								1879		
New Jersey avenue, from B to E street	1,600	50			8,776					1878		
New Jersey avenue, intersection of B street					605							
New Jersey avenue, from Canal to M street	1,400	50					6,868					
New Jersey avenue, from M to N street	700	50							3,112			
North Carolina avenue, from First to Third street	700	50							7,590			
North Carolina avenue, from Third to Sixth street	970	50						5,033		1890		
North Carolina avenue, from Sixth to Eighth street	1,400	50						6,378		1891		
North Carolina avenue, from Eighth to Eleventh street	1,100	50						6,480		1892		
Pennsylvania avenue, intersection of Second street			2,028							1879		
Pennsylvania avenue from Second to Fourth street	1,900	(*)	4,458							1879		
Pennsylvania avenue, from Second to Eighth street	3,600	(*)	14,775							1876	1882	Coal tar.
Pennsylvania avenue, from Fourth to Seventh street	1,400	(*)	6,126							1879		
Pennsylvania avenue, from Eighth to Eleventh street	1,100	(*)	5,320							1883		South side.
Pennsylvania avenue, from Eighth to Eleventh street	1,000	(*)	5,400							1888		North side.
Pennsylvania avenue, from Eleventh to Bridge street	6,800	(*)					20,147			1890		
South Carolina avenue, from Second to Sixth street	800								9,439			
South Carolina avenue, from Sixth to Seventh street	1,000	50						3,288		1891		
South Carolina avenue, from Ninth street to Massachusetts avenue.	3,200	50							17,777			
Virginia avenue, from South Capitol to Second street		50							8,344			
Virginia avenue, from Second to Third street	300	50					2,354			1889		
Virginia avenue, from Third to Eleventh street	3,010	50							10,000			
Virginia avenue, from Eleventh street to Eastern Branch.	1,800	50							9,000			

NORTHEAST.

North Capitol street, from B (east side) to C		50	1,395							1883		
North Capitol street, from C (east side) to D		50							1,050			
North Capitol street, from D (east side) to E		50			1,198					1893		
North Capitol street, from E (east side) to Massachusetts avenue.		50		1,928						1889		
North Capitol street, from Massachusetts avenue (east side) to I.		50	3,728							1887		
North Capitol street, from I (east side) to K		50	1,443							1889		
North Capitol street, from K (east side) to M		50	3,103							1892		

* Two roadways, 38 feet each.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHEAST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
North Capitol street, from M (east side) to New York avenue.	.....	50	1,105	.....	.....	.....	.....	.....	.....	.....	.....	
North Capitol street, from New York avenue (east side) to O.	.....	50	832	.....	.....	.....	.....	.....	.....	1894	.....	
North Capitol street, from O (east side) to Florida avenue.	.....	50	.....	.....	.....	.....	.....	.....	1,233	.....	.....	
Hancock street, between North Capitol and First to F and G.	540	24	.....	.....	.....	.....	.....	.....	1,635	.....	.....	
First street, from East Capitol to B	750	35	.....	4,412	.....	.....	.....	.....	.....	1873	1879	Coal tar.
First street, from B to C	520	35	1,987	.....	.....	.....	.....	.....	.....	1881	.....	
First street, from C to F	1,320	35	5,616	.....	.....	.....	.....	.....	.....	1891	.....	
First street, from F to Florida avenue	4,300	35	.....	.....	.....	.....	.....	.....	15,277	.....	.....	
Colfax street, from First and Second to L and M	660	30	.....	.....	.....	.....	.....	.....	2,167	.....	.....	
Second street, from East Capitol to Maryland avenue	720	32	2,440	.....	.....	.....	.....	.....	.....	1881	.....	
Second street, from Maryland avenue to C	550	32	.....	.....	.....	.....	.....	1,846	.....	1881	.....	
Second street, from C to F	1,280	30	.....	.....	.....	.....	.....	4,323	.....	1894	.....	
Second street, from F to H	980	32	3,885	.....	.....	.....	.....	.....	.....	.....	.....	
Second street, from H to Florida avenue	2,900	32	.....	.....	.....	.....	.....	.....	10,247	.....	.....	
Parker street, between Second and Third, I and K	380	24	.....	.....	.....	.....	.....	.....	1,000	.....	.....	
Third street, from East Capitol to Maryland avenue	970	32	3,121	.....	.....	.....	.....	.....	.....	1884	.....	
Third street, from Maryland avenue to C	300	32	.....	.....	.....	.....	.....	1,090	.....	1887	.....	
Third street, from C to F	1,260	32	4,314	.....	.....	.....	.....	.....	.....	1890	.....	
Third street, from F to H	1,000	32	3,834	.....	.....	.....	.....	.....	.....	1892	.....	
Third street, from H to Florida avenue	2,690	32	.....	.....	.....	.....	.....	.....	8,640	.....	.....	
Fourth street, from East Capitol to Maryland avenue	1,130	35	.....	.....	.....	.....	.....	4,526	.....	1885	.....	
Fourth street, from Maryland avenue to Massachusetts avenue.	370	35	.....	.....	.....	.....	.....	1,912	.....	1887	.....	
Fourth street, from Massachusetts avenue to D	240	35	.....	.....	.....	.....	.....	837	.....	189 1	.....	
Fourth street, from D to Florida avenue	4,400	35	.....	.....	.....	.....	.....	.....	16,337	.....	.....	
Fifth street, from East Capitol to C	11,200	40	.....	.....	.....	.....	.....	4,816	.....	1886	.....	
Fifth street, from C to D	220	40	.....	.....	.....	.....	.....	875	.....	1890	.....	
Fifth street, from D to Florida avenue	4,200	40	.....	.....	.....	.....	.....	.....	16,495	.....	.....	
Sixth street, from East Capitol to Maryland avenue	1,520	35	.....	.....	.....	.....	.....	4,626	.....	1886	.....	

Sixth street, from Maryland avenue to D	220	35						2,836		1891 / 1887		
Sixth street, from D to Florida avenue	4,150	35							14,645			
Lowndes street, between Sixth and Seventh, L and M	1,720	30							2,100			
Seventh street, from East Capitol to Massachusetts avenue.	800	32						3,340		1887		
Seventh street, from Massachusetts avenue to D	930	32						3,315		1889		
Seventh street, from D to Florida avenue	3,820	32							11,215			
Eighth street, from East Capitol to Massachusetts avenue.	630	40						2,969		1889		
Eighth street, from B to Maryland avenue	1,230	40						5,858		1891		
Eighth street, from Maryland avenue to I	2,020	40							7,963			
Eighth street, from I to K	400	40					1,747			1891		
Eighth street, from K to Florida avenue	880	40							3,697			
Ninth street, from East Capitol to Massachusetts avenue.	460	32	1,218							1893		
Ninth street, from Massachusetts avenue to Maryland avenue.	1,800	32						6,702		1891		
Ninth street, from Maryland avenue to H	1,480	32	5,781							1891		
Ninth street, from H to Florida avenue	1,440	32							4,988			
Tenth street, from East Capitol to G	2,726	32							10,298			
Tenth street, from G to H	470	32	2,061							1893		
Tenth street, from H to Florida avenue	1,196	32							4,244			
Eleventh street, from East Capitol to Florida avenue	4,720	32							17,000			
Twelfth street, from Lincoln Square to Maryland avenue.	2,450	35							9,300			
Twelfth street, from Maryland avenue to Florida avenue.	1,880	32					7,163			1890		
Thirteenth street, from Maryland avenue to Emerson	500	35	*1,907							1892		
Thirteenth street, from East Capitol to Florida avenue.	3,670	32							14,898			
Elliot street, between Thirteenth and Fourteenth, F and Maryland avenue.	490	22							1,500			
Emerson street, between Thirteenth and Fourteenth, E and F.	760	20	*1,949							1892		
Fourteenth street, from East Capitol to Florida avenue.	3,730	35							14,791			
Fourteen-and-a-half street, between Fourteenth and Fifteenth, D and North Carolina avenue.	920											
Florence Court, between Fourteenth and Fifteenth, F and G.	530	25							1,500			
Fifteenth street, from East Capitol to Florida avenue	3,600	35							12,196			
Sixteenth street, from East Capitol to C	1,230	35							4,196			
Seventeenth street, from East Capitol to C	1,230	35							4,196			
Eighteenth street, from East Capitol to C	1,230	35							4,196			
Nineteenth street, from East Capitol to C	1,230	35							4,196			
Twentieth street, from East Capitol to C	1,230	35							4,196			
Twenty-first street, from East Capitol to C	1,230	35							4,196			
Twenty-second street, from East Capitol to C	1,230	35							4,196			
Twenty-third street, from East Capitol to C	1,230	35							4,196			
Twenty-fourth street, from East Capitol to C	1,230	35							4,196			
Twenty-fifth street, from B to C	440	35							1,711			
East Capitol street, from First (north half) to Fourth	1,450	50	2,737							1879	1890	Asphalt.
East Capitol street, from Fourth (North half) to Ninth	1,950	50	3,417							1879	1889	Do.
East Capitol street, from Ninth (north half) to Eleventh	650	50	1,786							1883		

* Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHEAST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
East Capitol street, from Lincoln Square to Eastern Branch.	4,400	50							12,941			
A street, from First to Second	640	35	2,788							1880		
A street, from Second to Fourth	820	35	2,972							1884		
A street, from Fourth to Seventh	1,050	35		4,206						1887		
A street, from Seventh to Ninth	750	35						2,300		1890		
A street, from North Carolina avenue to Eastern Branch	4,200	35							17,111			
A street, from north side of Lincoln Square	850						4,240			1892		
B street, from North Capitol street to Delaware avenue	220	46			1,533							
B street, from Delaware avenue to First	700	46	4,411							1873	1880	Coal tar.
B street, from First to Second	640	40		3,098						1874	1894	Do.
B street, from Second to Fourth	700	35	2,556							1884		
B street, from Fourth to Sixth	500	35	2,016							1885		
B street, from Sixth to Massachusetts avenue	500			2,250						1887		
B street, from Massachusetts avenue to Eastern Branch	6,800	35							24,480			
Park street, between B and C, Eleventh and Twelfth	330	30							1,110			
C street, from North Capitol to Delaware avenue	420	46 63			1,107					1879		
C street, from Delaware avenue to First	500	32			2,081					1880		
C street, from First to Third	1,090	38			4,191					1882		
C street, from Third to Fourth	400	32			1,505					1884		
C street, from Fourth to Sixth	1,120	32 35						4,468		1884		
C street, from Sixth to Eighth	950	32						3,986		1888		
C street, from Eighth to Tenth	700	32						2,180		1891		
C street, from Tenth to Eastern Branch	6,280	32							19,195			
D street, from North Capitol to Delaware avenue	340	32							1,920			
D street, from Delaware avenue to Massachusetts avenue.	1,200	32	4,117							1893		
D street, from Massachusetts avenue to Maryland avenue.	1,450	32					5,446			1889		
D street, from Maryland avenue to Fifteenth	3,500	35							16,063			
E street, from North Capitol to First	800	35			2,913					1893		

E street, from Fourth to Fifteenth	1,420	30						5,640		1893	
California street, between E and F, First and Second	4,862	35							15,459		
F street, from North Capitol to Third	640	24	*1,635							1891	
F street, from Third to Fifteenth	2,000	35	8,335							1888	
Chicago street, between F and G, First and Second	4,642	35							17,861		
Morris street, between F and G, Sixth and Seventh	576	30							2,285		
G street, from North Capitol to First	561	30							2,000		
G street, from First to Sixth	860	35	2,308							1890	
G street, from Sixth to Seventh	1,800	35							6,151		
G street, from Seventh to Fifteenth	561	35					2,350			1891	
Jackson street, between G and H, North Capitol and First.	3,606	40							10,532		
James street, between G and H, Twelfth and Thirteenth.	750	20				1,738					
H street, from North Capitol to First	450	30							1,151		
H street, from First to Fifteenth	850	56	4,190							1883	1891	Asphalt.
Do	6,320	56	14,124							1883	*1893	Asphalt (north side).
Wylie street, between H and I, Twelfth and Thirteenth		56	13,662							1890	1893	Asphalt (south side).
I street, from North Capitol to First	450	24							1,360			
I street, from First to Sixth	840	35	3,295							1889		
I street, from Sixth to Seventh	1,780	35							7,531			
I street, from Seventh to Florida avenue	561	35					1,779			1889		
Myrtle street, from North Capitol and First to I and K	2,587	35							8,058			
K street, from North Capitol to I	850	20	1,426							1889		
K street, from First to Florida avenue	850	50	4,498							1889		
Fenton street, from North Capitol and I to K and L	3,520	50							23,436			
Callan street, from K and L to Sixth and Seventh	850	24							2,220			
L street, from North Capitol to Florida avenue	561								1,267			
Forsyth street, from North Capitol and First to L and M.	850	35							15,154			
Babcock street, from L and M to North Capitol and First.	850	25							2,220			
Riley street, from L and M to North Capitol and First.	850	25							2,220			
M street, from North Capitol to Second	850	25							2,220			
M street, from Second to Florida avenue	1,468	32	5,486							1894		
Patterson street, from M and N to North Capitol and Second.	1,730	32							5,323			
Morton Place, from Sixth and Seventh streets to M and L.	1,480	25							6,045			
N street, from North Capitol to Florida avenue	850	25							2,100			
Decatur street, from P and O to North Capitol and First.	2,270	35							7,300			
Orleans street, from L and M to Sixth and Seventh	747	25							1,245			
O street, from North Capitol to Florida avenue	561	30							2,100			
P street, from North Capitol to Florida avenue	1,250	35							4,622			
Delaware avenue, from B to C streets	700	35							2,513			
Delaware avenue, from C street to Florida avenue	590	50			2,056					1879		
Florida avenue from North Capitol to Ninth streets	5,300	50							27,112			
Florida avenue, from Ninth to Fifteenth streets	5,420	46							26,093			
Maryland avenue, from First to Fourth streets	3,060	46					17,005			1892		
	1,650	60						11,535		1887		

* Second to Seventh streets.

Statement of character and extent of street pavements, July 1, 1894—Continued.

NORTHEAST—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Maryland avenue, from Sixth to Eleventh streets	2,170	60						14,951		1889		
Maryland avenue, from Eleventh to Thirteenth streets	1,070	60						8,269		1890		
Maryland avenue, from Thirteenth to Fifteenth streets	1,040	60						9,635		1891		
Maryland avenue, from intersection of Fifteenth street	280	60			2,527					1889		
Massachusetts avenue, from North Capitol to First streets.	950	50	4,069							1892		
Massachusetts avenue, from First to Second streets	720	51						3,961		1893		
Massachusetts avenue, from Second to Fourth streets	700								3,084			
Massachusetts avenue, from Sixth to Eighth streets	1,060	50						6,749				
Massachusetts avenue, from Eighth to Eleventh	980	50							6,111			
New York avenue, from North Capitol street to Florida avenue.	1,370	50	5,393							1891		
North Carolina avenue, from Lincoln Square to C street	2,060	50							11,110			
Tennessee avenue, from Lincoln Square to Fifteenth street.	2,090	50							17,222			

GEORGETOWN.

Water street, from Rock Creek to Aqueduct	3,600	50			18,021					1875		
South Water street, from Water and M to Thirty-first and Thirty-second.	420											
Grace street, from Potomac to Thirty-second	670	20				1,228				1873		
M street, from Twenty-eighth to Thirty-first	1,700	50		7,887						1875	1888	Coal tar.
M street, from Thirty-first to Thirty-seventh	2,900	50			13,684					1875		
M street, from Thirty-seventh to Thirty-eighth	300	50					1,720			1876 / 1877		
Olive street, from Rock Creek to Twenty-eighth	500	44							1,566			

P street, from Rock Creek to Twenty-seventh street	300	30							870			
N street, from Twenty-seventh to Twenty-eighth	320	30				959				1874		
N street, from Twenty-eighth to Thirtieth	540	30						1,599		1882		
N street, from Thirtieth to Thirty-second	1,100	30	3,525							1880		
N street, from Thirty-second to Thirty-fifth	1,640	30	5,889							1880		
N street, from Thirty-fifth to Thirty-sixth	430	30	1,081							1891		
N street, from Thirty-sixth to Thirty-eighth	650	30							2,089			
O street, from Rock Creek to Twenty-eighth street	980	30							2,847			
O street, from Twenty-eighth to Twenty-ninth	300	30	860							1890		
O street, from Twenty-ninth to Thirty-second	1,590	30	4,829							1885		
O street, from Thirty-second to Thirty-fifth	1,500	30			4,435					1879		
O street, from Thirty-fifth to college gate	730	30		2,398							1888	Do.
Dunbarton avenue, from Rock Creek to Twenty-seventh street.	450	30				1,250						
Dunbarton avenue, from Twenty-seventh to Twenty-eighth street.	375	30							1,500			
Dunbarton avenue, from Twenty-eighth to Thirty-second street.	1,760	30		3,609						1887		
P street, from 340 feet west of bridge	340	30	1,590							1879		
P street, from Rock Creek to Twenty-eighth street	1,600	30			6,869					1878		
P street, from Twenty-eighth to Thirty-second	2,000	30			2,042					1879		
P street, from Twenty-eighth to Thirty-second		30			1,969					1879		
P street, from Thirty-second to Thirty-fifth	1,370	30			3,624					1884		
P street, from Thirty-fifth to Thirty-seventh	680	30							2,084			
Bank street, between M and Prospect to Thirty-third and Thirty-fourth	250											
Aqueduct street, from M street to bridge	330											
Mill street, from P to North	600	30					1,500					
North street, from P to Mill	400	30							1,500			
Q street, from Twenty-eighth to Thirtieth	550	30	2,000							1889		
Q street, from Thirtieth to Valley	1,200	30		3,943						1887		
Q street, from Valley to Thirty-second	300	30		1,067						1887		
Q street, from Thirty-second to Thirty-fifth	1,230	30	4,002							1891		
R street, from Thirty-second to Thirty-fifth	1,000	30							3,365			
S street, from Thirty-second to Thirty-fifth	750	30							2,577			
T street, from Thirty-second to Thirty-fifth	750	30							2,567			
U street, from Twenty-eighth to Thirty-second	2,780	30							10,977			
U street, from Thirty-second to Thirty-fifth	600	30	1,552							1894		
Cambridge Place, Irvin Place, and Avon Place in Cooke Park.	1,410	25	*4,088							1893		
Twenty-seventh street, from M to P	1,420	30							4,750			
Twenty-eighth street, from Rock Creek to M street	400	30										
Twenty-eighth street, from M to P	1,420	30	4,428							1872	1894	Cobble.
Twenty-eighth street, from P to Q	400	30	1,474							1890		
Twenty-eighth street, from Q to U	690	30							3,116			
Twenty-ninth street, from Water to M	850	30				2,919				1874		
Twenty-ninth street, from M to N	550	30			1,885					1882		
Twenty-ninth street, from N to P	850	30	2,046					920		1883	1893	Asphalt block.

*Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

GEORGETOWN—Continued.

Locality.	Carriageway.											Resurfaced; originally paved with—
	Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Twenty-ninth street, from P to Q	370	30	1,261							1890		
Twenty-ninth street, from Q to U	700	30							4,610			
Thirtieth steeet, from Water to M	860	30				2,732				1875		
Thirtieth street, from M to N	550	30			2,121					1879		
Thirtieth street, from N to P	840	30	2,932							1883		
Thirtieth street, from P to Q	370	30	1,282							1888		
Thirtieth street, from Q to U	700	30			2,746					1883		
Jefferson street, between Thirtieth and Thirty-first to Water and M.	860	30				2,839				1874		
Thirty-first street, from K to Canal	550	30				1,833				1887		
Thirty-first street, from Canal to M	340	30		1,209						1880		
Thirty-first street, from M to N	520	30			1,742					1880		
Thirty-first street, from N to P	850	30	2,937							1882	1893	Asphalt block.
Thirty-first street from P to U	940	30	1,832		3,285					1885		
Valley street, between Thirty-first and Thirty-second to P and U.	550											
Thirty-second street, from Water to M	1,500	30				3,540						
Thirty-second street, from M to P	860	30			6,202					1879		
Thirty-second street, from P to U	1,560	30				6,416						
Potomac street, from Canal to M	650	30				1,071				1875		
Potomac street, from M to Prospect	320	30			389					1879		
Potomac street, from Prospect to O	600	30	1,840							1884		
Potomac street, from M to Prospect	320	30			664					1884		
Thirty-third street, from M to Water	500	30							1,660			
Thirty-third street, from M to N	550	30	1,580							1890		
Thirty-third street, from N to P	620	30	2,050							1883		
Thirty-third street, from P to Thirty-second	1,300		4,675							1890		
Thirty-fourth street, from Water to M	350	30							1,066			
Thirty-fourth street, from M to N	550	30	1,660							1890		
Thirty-fourth street, from N to P	600	30	2,109							1892		
Thirty-fourth street, from P to R	680	30	2,265							1891		
Thirty-fourth street, from R to Thirty-second	1,800	30					6,570					
Thirty-fifth street, from Water to M	270	30							660			

Thirty-fifth street, from Q to U	1,440	35	5,749							1890	
Thirty-fifth street, from U to Tennallytown road	1,400	35	6,009							1891	
Thirty-sixth street, from M to Prospect	260	30							800		
Thirty-sixth street, from Prospect to O	670	30	2,368							1891	
Thirty-sixth street, from O to Q	850	30							2,200		
Thirty-seventh street, from M to Q	1,650	30							4,167		
High (Thirty-second) street, from Thirty-fifth to Tunlaw road.	2,121				6,076					1893	

SUBURBAN (NORTHWEST.)

First street extended, from R to S	447	35	*1,898							1892	
First street extended, from Florida avenue to R to S to T	625	35					2,575			1891	
Le Droit avenue, from Florida avenue to Maple	1,055	35	*4,419							1892	
Le Droit avenue, from Maple to W street	405	35	*1,632							1892	
Linden street, from Florida avenue northward	429	35	1,571							1891	
Linden street, from end of pavement to Maple avenue	147	35	574							1892	
Larch street, from Florida avenue to Maple	423	32	1,516							1890	
Larch street, from Maple avenue to Spruce street	191	32	734							1891	
Maple avenue, from Florida avenue to Linden street	810	32	3,227							1890	
Maple avenue, from Linden street to Le Droit avenue	986	32	3,680							1891	
Pomeroy street, from Fifth to Seventh	754	30	2,560							1891	
Brightwood avenue, from Florida avenue to Pomeroy street.		50			733					1890	
Brightwood avenue, from Florida avenue northward		50			5,222					1891	
Brightwood avenue, from Grant street to Irving	4,490	56			6,295					1889	
Brightwood avenue, from Irving street to Steuben		56			2,749					1891	
Brightwood avenue, from Irving street northward		56			3,040					1893	
Fourteenth street extended, from Florida avenue to Yale street.		56	7,365							1889	
Fourteenth street extended, from Yale street northward	3,650	56	3,725							1891	
Fourteenth street extended, from end of pavement northward.		56	4,307							1892	
Clifton street, from Fourteenth street extended eastward	665	30	2,221							1891	
Stoughton street, from Fourteenth street extended to Fifteenth.	700	30	1,100		755			*483		1889	
Chapin street, from Fourteenth to Columbia road	857	30	1,702		674			*483		1892	
Welling Place, from Fourteenth street to University Place.	529	30	*1,781							1892	
Euclid Place, from Fourteenth street to University Place.	500	30	1,666							1891	
Eighteenth street, from Florida avenue to Columbia road.	2,040	32	*3,206							1891	
California street, from Eighteenth to Nineteenth	646	30	*2,153							1891	

* Permit work.

Statement of character and extent of street pavements, July 1, 1894—Continued.

SUBURBAN (NORTHWEST)—Continued.

Locality.	Carriageway. Length.	Width.	Asphalt.	Coal tar and concrete.	Granite.	Cobble and blue rock.	Macadam.	Asphalt block.	Unimproved.	Year paved.	Year resurfaced.	Resurfaced; originally paved with—
	Feet.	*Feet.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*	*Sq. yds.*			
Connecticut avenue extended	{19,169 / 659}	50	*2,195				70,228			1891		
Champlain avenue	1,900						6,668			1894		
Linden street, from Maple avenue to Pomeroy street	1,184	33					4,672			1891		
Linden street, from Pomeroy to College	740	28					2,537			1873		
Steuben street, from Brightwood avenue to Sherman	786	30					2,712			1893		
Sheridan street, from Brightwood avenue to Sherman	780	30					2,660			1889		
New-cut road, from Thirty-fifth to Thirty-ninth street	1,210						3,695			1891		
New Hampshire avenue (Petworth), from Rock Creek Church road to Omaha street.	905	50	5,081							1892		
Omaha street, from New Hampshire avenue to Fifth street.	920	35	3,536							1892		
Massachusetts avenue, from Florida avenue to Belmont street	3,469						19,938			1893		

SUBURBAN (NORTHEAST).

First street, from Q to R	137	35	2,206	(*)						1891		
First street, from R to alley	519	35	538	(*)						1892		
Second street extended, from R to T	1,024	35	4,213	(*)						1891		
Q street, from Lincoln avenue to First street	584	35	2,268	(*)						1892		Brick gutters.
Q street, from First street to Eckington Place	430	35	1,666	(*)						1892		Do.
Third street, from R to Quincy	262	35	1,133	(*)						1892		Do.
Quincy street, from Third street to Eckington line	270	30	919	(*)						1892		Do.
Quincy street, from Lincoln avenue to Eckington Place	1,088	30	3,770	(*)						1891		
Eckington Place, from Q to R	536	24	1,560	(*)						1891		
Fourth street, from R to railroad track	262	35	1,022	(*)						1891		Granite at railroad.
R street, from Fourth street to Brentwood road	584	35	2,437	(*)						1891		Do.
Nichols avenue, from Harrison street, southeast (Anacostia)		34			6,813					{1889 / 1891}		

REPORT OF THE CHIEF CLERK, ENGINEER'S OFFICE.

OFFICE OF THE ENGINEER COMMISSIONER,
Washington, D. C., October 4, 1894.

SIR: I have the honor to submit the following report for the fiscal year ended June 30, 1894:

Communications received, briefed, and recorded in L. R. book	8,110
Indorsements, references, and reports on above	40,550
Letters and orders prepared	7,188
Copies of contracts drawn	456
Vouchers and bills prepared, recorded, and forwarded	4,154

Schedules of bids received during the fiscal year for work and materials under the Engineer's office, and statements of contracts for construction material, supplies, and miscellaneous work are herewith.

Very respectfully,

JOHN WALKER,
Chief Clerk, Engineer's Office

Capt. CHAS. F. POWELL,
Corps of Engineers, U. S. Army,
Engineer Commissioner of the District of Columbia.

Statement of construction, hauling, and miscellaneous contracts for fiscal year 1894.

Contract.	Date.	Contractor.	Description.
	1893.		
1787	June 2	M. F. Talty, Washington, D. C.	Make repairs along street railroad tracks.
1802	June 22	H. J. McLaughlin, Washington, D. C.	Lay and put down cement pavement.
1803	July 1	Washington Asphalt Block and Tile Co., Washington, D. C.	Lay and put down asphalt tile sidewalks.
1804	June 30	McMahan, Porter & Co., New Cumberland, W. Va.	Furnish vitrified invert blocks.
1827	July 14	R. & P. H. Horn, Washington, D. C.	Haul sand, brick, and asphalt blocks.
1831	July 15	G. W. Knox Express, Washington, D. C.	Haul cast-iron pipe, castings, hydrants, etc.
1832	July 15	.....do.....	Haul granite curbing.
1852	July 27	J. M. Dunn, Washington, D. C.	Construct eight-room schoolhouse, southwest corner Fourteenth and G streets NE.
1856	Aug. 14	D. F. Mockabee, Washington, D. C.	Construct family house at Reform School.
1861	Aug. 12	H. I. Gregory, Washington, D. C.	Furnish Smead heating and ventilating apparatus and dry-closet system at schoolhouse, Fourteenth and G streets NE.
1872	Sept. 8	G. R. Herbert, Washington, D. C.	Furnish and set up automatic pump at the Central High School.
1873	Sept. 19	H. I. Gregory, Washington, D. C.	Furnish Smead heating and ventilating apparatus and dry-closet system at school on Vermont avenue, between U and V streets, NW.
1874	Sept. 7	C. Thomas & Son, Washington, D. C.	Construct eight-room schoolhouse on Vermont avenue, between U and V streets, NW.
1877	Sept. 19	A. Daggett, Washington, D. C.	Sprinkle, sweep, and clean paved alleys.
1880	Oct. 25	G. Cumberland, Washington, D. C.	Reflector Aqueduct bridge.
1882	Oct. 6	G. R. Herbert, Washington, D. C.	Steam heating apparatus at Reform School.
	1894.		
1888	Jan. 31	R. V. Rusk, Washington, D. C.	Street cleaning.
1893	Feb. 12	Geo. Drew & Son, Washington, D. C.	Lay cement sidewalks.
1895	Mar. 12	Ralph Wormley, Washington, D. C.	Clean unimproved streets and alleys from April 1 to June 30, 1894.
1902	Apr. 11	A. M. Lawson, Washington, D. C.	Construct an addition to Engineer's stables.
1903	Apr. 17	The Radford Pipe and Foundry Co., Radford, Va.	Furnish lamp-posts.
1904	May 28	The Potomac Terra Cotta Co., Washington, D. C.	Furnish sewer pipe.
1905	Apr. 30	McMahan, Porter & Co., New Cumberland, W. Va.	Do.
1910	May 15	Nordberg Manufacturing Co., Milwaukee, Wis.	Furnish pumping engine and boilers for U street pump house.
1911	May 26	R. H. Hood, Washington, D. C.	Furnish and deliver plate girder bridge over James Creek Canal at N street SW.
1915	June 29	Richard Horn, sr., and Richard Horn, jr., Washington, D. C.	Clean unpaved alleys.
1919	June 27	Pennsylvania Globe Gaslight Co., Philadelphia, Pa.	Furnish 300 street lanterns.

Statement of construction, hauling, etc.—Continued.

Contract.	Date.	Contractor.	Description.
	1891.		
1577	Sept. 14	Washington Gaslight Co., Washington, D. C.	Furnish gas and maintain street lights three years from June 30, 1891.
1580	Sept. 23	Georgetown Gaslight Co., Georgetown, D. C.	Furnish gas and maintain street lights three years from June 30, 1891.
1507	July 1	Nicolai Bros., Washington, D. C.....	Furnish oil and maintain street oil lamps three years from July 1, 1891.
	1892.		
1618	Jan. 21	Benj. W. Clark, Washington, D. C ...	To collect and remove garbage and dead animals for five years from July 1, 1892.
1641	June 9	Ellis & Daggett, Washington, D. C....	To sprinkle, sweep, and clean paved streets and avenues for five years from June 1892.
	1894.		
1895	Mar. 20	Ralph Wormley, Washington, D. C ...	To clean unimproved streets and avenues and alleys.
	1891.		
1564	Aug. 31	United States Electric-Lighting Co., Washington, D. C.	Furnish and maintain electric lights July 1, 1891, to June 30, 1894.
	1893.		
1793	June 7	The National Sanitary Co., Baltimore, Md.	Removal and destruction of garbage to date to July 1, 1897.

Contracts for furnishing construction material for fiscal year 1894.

Contract.	Date.	Contractors.	To furnish—
	1893.		
1770	Apr. 28	Acker & Co., Washington, D. C.....	8 by 8 granite curbing.
1771	Apr. 27	The Brandywine Granite Co., Wilmington, Del.	6 by 20 granite curbing.
1773	May 1	Angus M. Smith, Asheville, N. C.....	8 by 8 granite curbing.
1774	May 2	The Stillwell Manufacturing Co., Philadelphia, Pa.	Water valves.
1775	May 3	E. L. Dent, Washington, D. C.....	Cast-iron covers, casings, and rings.
1780	May 13	The Richmond Granite Co., Richmond, Va.	Granite paving blocks.
1782	May 22	Fred Stone, New York City.....	Ludlow water valves.
1783	May 18	Smith & Venable, Asheville, N. C....	Granite paving blocks.
1784	May 25	Booth Bros. and Hurricane Island Granite Co., New York City.	Do.
1786	May 29	The Radford Pipe and Foundry Co., Radford, Va.	Cast-iron water pipe.
1788	May 26	The Shale Brick Exchange, Canton, Ohio.	Canton standard vitrified paving bricks
1800	June 27	The Frederick Brick Works, Frederick, Md.	Paving bricks.
1801	June 29	The Jackson-Jones Co., Washington, D. C.	Portland cement.
1828	July 13	The Savage Fire-Brick Co., Keystone Junction, Pa.	Vitrified invert bricks.
1840	July 20	J. B. Lord, Washington, D. C	Sand and pebbles.
1845	July 24	John Burns, Washington, D. C.....	Bluestone trap frames and covers.
1870	Sept. 6	E. L. Dent, Washington, D. C	50 fire hydrants.
1871	Sept. 8	A. H. Haig, Philadelphia, Pa	100 6-inch fire hydrants.
1875	Sept. 23	The Childs Brick Co., Washington, D. C.	500,000 sewer bricks.
1876	Sept. 25	J. H. McGill, Washington, D. C.....	10,000 barrels of natural cement.
1878	Oct. 11	McNeal Pipe and Foundry Co., Burlington, N. J.	12-inch cast-iron pipe.
1879	Oct. 11	J. G. & J. M. Waters, Washington, D. C.	Natural hydraulic cement.
1881	Oct. 25	Frederick Brick Works, Frederick, Md.	Paving bricks.
1883	Nov. 1	Washington Asphalt Block and Tile Co., Washington, D. C.	Asphalt blocks.
1885	Nov. 27	Potomac Terra Cotta Co., Washington, D. C.	Terra cotta material.
1886	Dec. 12	M. J. Drummond, 192 Broadway, New York.	Cast-iron pipe.
	1894.		
1890	Feb. 1	Washington Asphalt Block and Tile Co., Washington, D. C.	Hexagon asphalt tiles.
1892	Feb. 6	W. H. March, Philadelphia, Pa	125,000 pounds special castings.
1894	Mar. 12	J. H. McGill, Washington, D. C.....	450 barrels Portland cement.
1906	Apr. 21	The Radford Pipe and Foundry Co., Radford, Va.	40,000 feet 6-inch cast-iron pipe.
1908	May 10	A. H. Haig, Philadelphia, Pa.....	100 fire hydrants.

Contracts for general supplies for fiscal year 1894.

Contract.	Date.	Contractor.	To furnish—
	1893.		
1807	July 6	J. E. Chapman, Washington, D. C.....	Fuel.
1808	July 7	R. J. Kennedy, Washington, D. C	Do.
1809	July 7	Mayfield & Huston, Washington, D. C.	Do.
1810	July 7	H. L. Gregory, Washington, D. C	Tinware.
1811	July 10	C. T. Carter & Co., Washington, D. C..	Hardware.
1812	July 10	C. A. Muddiman, Washington, D. C...	Tinware.
1813	July 10	Craig & Harding, Washington, D. C..	Furniture.
1814	July 10	T. T. Keane, Washington, D. C.....	Fresh beef and corned beef.
1815	July 11	W. J. C. Dulany, Baltimore, Md	Stationery
1816	July 11	.....do	School books.
1817	July 11	.....do	Hardware.
1818	July 11	M. W. Beveridge, Washington, D. C...	Furniture.
1819	July 11	.....do	Tinware.
1820	July 8	J. P. Agnew & Co., Washington, D. C.	Fuel.
1821	July 11	R. J. Earnshaw, Washington, D. C	Groceries.
1822	July 11	J. C. Ergood & Co., Washington, D. C.	Do.
1823	July 11	Royce & Marean, Washington, D. C...	Telephone and telegraph supplies.
1824	July 12	J. H. Chesley & Co., Washington, D. C.	Hardware.
1825	July 13	Geo. White & Sons, Washington, D. C.	Miscellaneous castings.
1826	July 14	Easton & Rupp, Washington, D. C....	Stationery.
1829	July 13	J. E. Stake & Co., Washington, D. C..	Groceries.
1830	July 15	W. M. Galt & Co., Washington, D. C..	Do.
1833	July 19	Dunlap Printing Co., Philadelphia, Pa.	Blank forms and printing.
1834	July 10	Wm. Ballantyne & Sons, Washington, D. C.	Stationery.
1835	July 10	.....do	School books.
1836	July 17	Scheller & Stevens, Washington, D. C.	Drugs.
1837	July 19	B. Rich & Sons, Washington, D. C	Boots and shoes.
1838	July 19	.....do	Dry goods.
1839	July 20	R. Leitch & Sons, Washington, D. C ..	Plumbers' materials.
1841	July 21	T. Somerville & Sons, Washington, D. C.	Do.
1842	July 22	Great Falls Ice Co., Washington, D. C.	Ice.
1843	July 22	F. P. May & Co., Washington, D. C....	Hardware.
1844	July 24	S. R. Waters, Washington, D. C	Groceries.
1846	July 25	W. H. Moore & Co., Washington, D. C.	Blank forms and printing.
1847	July 19	C. E. Hoover, Washington, D. C	Fresh meats.
1848	July 24	The Vacuum Oil Co., Rochester, N. Y.	Oil.
1849	July 25	Geo. Ryneal, jr., Washington, D. C....	Paints, glass, and varnish.
1850	July 27	Z. D. Gilman, Washington, D. C	Drugs.
1851	July 27	W. T. Galliher & Bro., Washington, D. C.	Lumber.
1853	July 29	Frank Hume, Washington, D. C.....	Groceries.
1854	Aug. 1	Lansburgh & Bro., Washington, D. C .	Dry goods.
1855	July 20	J. B. Bryan & Bro., Washington, D. C .	Groceries.
1857	Aug. 4	Hugh Reilly, Washington, D. C	Glass, paints, and varnish.
1858	Aug. 1	Mackall Bros. & Flemer, Washington, D. C.	Drugs.
1859	Aug. 4	T. W. Smith, Washington, D. C.....	Lumber.
1860	July 29	Nelson Morris & Co., Washington, D. C.	Fresh meats.
1862	Aug. 15	W. A. Pate, Washington, D. C.....	Hardware.
1863	Aug. 15	.....do	Plumbers' materials.
1864	Aug. 15	.....do	Telegraph and telephone supplies.
1865	Aug. 15	.....do	Saddlery.
1866	July 26	Wyckoff, Seamans & Benedict, New York City.	Stationery.
1867	Aug. 10	J. H. Buscher, Washington, D. C	Fresh meats.
1869	Sept. 6	J. B. Daish, Washington, D. C.....	Forage.
1884	Oct. 27	W. B. Moses & Sons, Washington, D. C.	Furniture.

Proposals for grading North Capitol street, opened January 11, 1894.

Bidder.	Per cubic yard.	Remarks.
W. E. Chaffee, Washington, D. C	$0.15½	Bid accepted.
M. F. Talty, Washington, D. C	.18	
P. F. Cogan, Washington, D. C	.18	
George Killeen, Washington, D. C	.18¼	
Washington Asphalt Block and Tile Co., Washington, D. C	.18¾	
Albert Gleason, Washington, D. C	.22¼	

Proposals for grading sidewalk on F street between Virginia and New Hampshire avenues, opened January 27, 1894.

Bidder.	Per cubic yard.	Remarks.
P. Maloney, Washington, D. C	$0.23	Bid accepted.
M. F. Talty, Washington, D. C	.27	
Geo. Killeen, Washington, D. C	.31	

Proposals for grading Fifteenth street between East Capitol and E streets northeast, opened February 1, 1894.

Bidder.	Per cubic yard.	Remarks.
E. G. Grummel, Washington, D. C	$0.20½	Bid accepted.
H. Naylor, Washington, D. C	.21	
M. F. Talty, Washington, D. C	.21	
Geo. Killeen, Washington, D. C	.24	
J. McCandlish, Washington, D. C	.24½	

Proposals for grading Prospect street, opened April 2, 1894.

Bidder.	Per cubic yard.	Remarks.
Wm. Harnady, Georgetown, D. C	$0.17	Bid accepted.
E. G. Gummel, Washington, D. C	.23	

Proposals for laying cement sidewalks, opened January 27, 1894.

Bidder.	Per square yard.	Remarks.
Cranford Paving Co., Washington, D. C	$1.68	Bid accepted.
Geo. Drew & Son, Washington, D. C	1.59	
H. J. McLaughlin, Washington, D. C	1.81	
Jacob F. St. John, Washington, D. C	1.69	

Proposals for furnishing bluestone trap frames and covers.

Bidder.	Date of receipt.	Side traps (each).	Corner traps (each).	Remarks.
John Burns, Washington, D. C	July 7, 1893	$16.00	$17.00	Bid accepted.
Acker & Co., Washington, D. C	....do....	17.50	19.50	

Proposals for furnishing sand, pebbles, and broken stone.

[Price per cubic yard.]

Bidder.	Date of receipt.	Concrete sand.	Paving sand.	Screened pebbles.	Screened sand.	Broken stone.
ohn B. Lord, Washington, D. C.*	July 7, 1893	$0.47	$0.47	$0.85	$0.70	.....
ohn T. Summers, Washington, D. C.	.....do.....	.55	.48	.90	.69	.....
G. Smith & Son, Washington, D.C.†	.....do.....	.....	.....	.....	.....	$1.44

* Bid accepted for furnishing sand and pebbles. † Bid accepted for furnishing broken stone.

Proposals for furnishing Portland cement, opened February 24, 1894.

[Price per barrel.]

Bidder.	At District cement house.	At bidders' warehouse.	Remarks.
J. G. & J. M. Waters, Washington, D. C.	$2.39	.....	
The Jackson Jones Co., Washington, D. C.	2.47	.....	
J. H. McGill, Washington, D. C	2.39	$2.29	Bid accepted; will furnish J. B. White & Bros. Portland cement for 20 cents per barrel over prices named.

Proposals for furnishing natural cement, opened September 2, 1893.

[Price per barrel.]

Bidder.	At District cement house.			At bidders' warehouse.				For failure to return bags.
	In barrels.	In hemp or canvas bags.	In paper bags.	In barrels.	In hemp or canvas bags.	In paper bags.	In bulk.	
J. G. & J. M. Waters, Washington, D. C.*	$1.14	$0.92	.....	$1.11	$0.88	.....	.....	$0.10
G. W. Sullivan, Philadelphia, Pa.	1.19	.99	$1.04	.....	.....	.....	.....	.10
J. H. McGill, Washington, D. C.†	.....	.....	.....	1.05	.90	$0.90	$0.85	.15

* Bid accepted for 12,000 barrels. † Informal; no deposit. Bid accepted for 10,000 barrels.

Proposals for furnishing 500,000 paving bricks, opened October 2, 1893.

Bidder.	Price per M.	Total.
Reed & Ettla, Clearfield, Pa., at District property yards:		
8 inches square by 3 inches thick	$28.00	.....
8 inches square by 2½ inches thick	23.00	.....
8 inches square by 3 inches thick	35.00	.....
8 inches square by 2½ inches thick	30.00	.....
3 by 8 by 27 inches	122.00	.....
Vitrified (re-pressed)	16.25	.....
Vitrified (regular)	16.00	.....
Frederick Brick Works, Frederick, Md., at District property yards*	9.50	$4,750.00
The Childs Brick Co., Washington, D. C.:		
In city or county of Washington, upon or south of Florida avenue and Bennings road, between Eastern Branch and Rock Creek	10.00	5,000.00
In city of Georgetown	11.00	5,500.00
In county of Washington, east of Eastern Branch	11.00	5,500.00
In county of Washington, between Eastern Branch and Rock Creek, and not over 1½ miles from Florida avenue	11.00	5,500.00
In county of Washington west of Rock Creek, within 1 mile from Georgetown	12.00	6,000.00
At bidders' works	9.00	4,500.00
At District property yards	10.00	5,000.00

* Bid accepted.

Proposal for furnishing asphalt paving blocks, opened October 29, 1893.

Bidder.	Price per M.	Remarks.
Washington Asphalt Block and Tile Co., Washington, D. C.	$64.50	Bid accepted.

Proposal for furnishing asphalt tile, opened January 20, 1894.

Bidder.	Price per M.	Remarks.
Washington Asphalt Block and Tile Co., Washington, D. C.	$53.50	Bid accepted

Proposals for furnishing sewer bricks, opened September 2, 1893.

[Price per 1,000.]

	Charles Ford, Washington, D. C.	Childs Brick Co., Washington, D. C.*	Alfred Richards Brick Co., Washington, D. C.	W. H. West & Bro., Washington, D. C.	Ivy City Brick Co., Washington, D. C.	Frederick Brick Works, Frederick, Md.
In District of Columbia, south of Florida avenue and Bennings road, and between Eastern Branch and Rock Creek	$7.00	$7.20	$7.25	$9.00	7.25 8.00	------
In city of Georgetown	7.50	8.20	8.00	9.25	8.75 8.00	------
In county of Washington east of Eastern Branch	7.75	8.20	7.75	9.50	10.25 9.50	------
In county of Washington between Eastern Branch and over 1¼ miles from Florida avenue	8.00	8.00	8.50	9.50	9.75 9.25	------
In county of Washington west of Rock Creek, within 1 mile of Georgetown	8.50	9.20	9.00	9.50	10.75 10.00	------
At bidder's works in city or county of Washington	6.00	7.50	----------	7.00	7.50 7.00	------
At District property yards	7.00	7.20	8.00	9.00	8.00 7.50	$8.40
For hauling beyond limits named (per mile)	.65	1.00	----------	.50	.25	----------

* Bid accepted.

Proposals for furnishing sewer pipe, opened November 18, 1893.

Bidder.	Pipe (per linear foot).							
	6-inch.	8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.
Angus Lamond, Washington, D. C.	$0.07½	$0.11½	----------	----------	----------	----------	----------	----------
Freeman Fire Clay Co., Freeman, Ohio	.08	.125	$0.19	$0.25	$0.40	$0.52	----------	$1.00
Potomac Terra Cotta Co., Washington, D. C.*	.05½	.08½	.10½	.12	.19	.27	$0.41	.54
McMahan, Porter & Co., New Cumberland, W. Va	.0675	.108	.144	.18	.27	.369	.549	.81
T. Somerville & Sons, Washington, D. C.	.06	.8½	----------	.15	.23½	.32½	.47	.65
State Line Sewer Pipe Co., East Palestine, Ohio	.07	.10½	.15½	.25	.29	.40	.62	.81
John Robrecht, Wheeling, W. Va.	.063	.094	.1365	.1785	.2835	.3885	.5775	.7455

Proposals for furnishing sewer pipe, opened November 18, 1893—Continued.

Bidder.	Y-branches (each).				
	8 by 6.	10 by 6.	18 by 6.	21 by 6.	24 by 6.
Angus Lamond, Washington, D. C					
Freeman Fire Clay Co., Freeman, Ohio	$0.65	$0.87	$2.40		$4.50
Potomac Terra Cotta Co., Washington, D. C.*	.36	.46	1.22	$1.82	2.44
McMahan, Potter & Co., New Cumberland, W. Va	.57	.665	1.805	2.613	3.563
T. Somerville & Sons, Washington, D. C	.38				
State Line Sewer Pipe Co., East Palestine, Ohio	.48	.70	1.90	2.81	3.66
John Robrecht, Wheeling, W. Va	.42	.609	1.77	2.59	3.37

* Bid accepted.

Proposals for furnishing sewer pipe, opened April 21, 1894.

Bidder.	Pipe (per linear foot).											
	6-inch.		8-inch.		10-inch.		18-inch.		21-inch.		24-inch.	
	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.
Potomac Terra Cotta Co., Washington, D. C.*	$0.05½	$57.50	$0.08½	$85.00	$0.11½	$437.00	$0.29½	$1,111.00	$0.48	$1,392.00		
Angus Lamond, Washington, D. C	.06	60.00	.09	90.00								
McMahan, Porter & Co., New Cumberland, W. Va.†	.06	60.00	.09	90.00	.13	494.00	.33	1,254.00	.50	1,450.00	$0.64	$2,880.00
Thos. Somerville & Sons, Washington, D. C	.06	60.00	.09	90.00			.34	1,292.00	.50	1,450.00	.65	2,925.00
State Line Sewer Pipe Co., New Palestine, Ohio	.07½	72.50	.11	110.00	.15½	598.50	.41½	1,567.50			.81½	3,650.25

Bidder.	Y-branches (each).										6-inch ½ bends (each).	
	10 by 6 inches.		12 by 6 inches.		18 by 6 inches.		21 by 6 inches.		24 by 6 inches.			
	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.	Price.	Cost.
Potomac Terra Cotta Co., Washington, D. C.*	$0.55	$247.50	$0.67	$603.00	$1.45	$290.00	$2.20	$440.00			$0.20	$80.00
Angus Lamond, Washington, D. C											.22	88.00
McMahan, Porter & Co., New Cumberland, W. Va	.58	261.00	.70	630.00	1.45	290.00	2.25	450.00	$2.75	$275.00	.22	88.00
Thos. Somerville & Sons, Washington, D. C											.20	80.00
State Line Sewer Pipe Co., New Palestine, Ohio	.73½	329.62	.95½	861.75	1.91½	382.50			3.65½	365.75	.27½	109.00

* Bid accepted for furnishing 6, 8, 10, 18, 21 inch pipe, and 10 by 6, 12 by 6, and 21 by 6 branches, and 6 inch ½-bends.
† Bid accepted for furnishing 18 and 24 inch pipe, and 18 by 6 and 24 by 6 inch branches.

Proposals for furnishing 12-inch cast-iron water pipes, opened September 29, 1893.

[Price per ton of 2,240 pounds.]

Bidder.	Quantity.	On wharf.	On cars.
	Feet.		
McNeal Pipe and Foundry Co., Burlington, N. J.*	40,000	$21.75	$23.30
Radford Pipe and Foundry Co., Radford, W. Va	40,000	23.18	23.18
Chattanooga Pipe and Foundry Co., Chattanooga, Tenn	40,000	23.79	24.19
M. J. Drummond, New York City	20,000	.....	23.63
National Foundry and Pipe Works, Scottdale, Pa	40,000	.....	23.45
R. D. Wood & Co., Philadelphia, Pa	40,000	23.44	.....
Howard Harrison Iron Co., Bessemer, Ala.†	40,000	.....	22.10
Millert Foundry and Machine Co., Reading Pa.‡	20,000	.....	27.10

* Bid accepted. † Ton of 2,000 pounds. ‡ Informal.

Proposals for furnishing cast-iron water pipes, opened November 25, 1893.

[Price per ton of 2,240 pounds.]

Bidder.	12-inch pipe.			6-inch pipe.			Remarks.
	Quantity.	On cars.	On wharf	Quantity.	On cars.	On wharf	
	Feet.			*Feet.*			
Radford Pipe and Foundry Co., Radford, W. Va.	20,000	$21.06	.....	20,000	$21.06	.....	
M. Neal Pipe and Foundry Co., Burlington, N. J.	40,000	24.00	$22.75	30,000	24.00	$22.75	
Camden Iron Works, Camden, N. J.	40,000	22.93	21.63	30,000	22.93	21.63	
M. J. Drummond, New York City.	40,000	20.70	.....	30,000	21.50	.....	Pipe cast with bell up. Bid accepted.
National Pipe and Foundry Works, Scottdale, Pa.	40,000	21.60	.....	30,000	21.60	.....	
Peale, Peacock & Kerr, Philadelphia, Pa.	40,000	23.16	.....	30,000	23.16	.....	
Howard Harrison Iron Co., Bessemer, Ala.	40,000	21.40	.....	30,000	21.40	.....	Pipe cast with bell up.
Chattanooga Foundry and Pipe Works, Chattanooga, Tenn.	40,000	21.90	.....	30,000	22.40	.....	Do.
South Pittsburg Pipe Works, Pittsburg, Pa.	40,000	21.95	.....	30,000	22.20	.....	Do.

Proposals for furnishing 6-inch cast-iron water pipe, opened April 17, 1894.

Bidder.	Per ton of 2,240 pounds.	Remarks.
Radford Pipe and Foundry Co., Radford, Va	$20.10	Bid accepted.
National Foundry and Pipe Works, Scottdale, Pa	20.40	
Howard Harrison Iron Co., Bessemer, Ala	20.83	
R. D. Wood & Co., Philadelphia, Pa	24.40	
Anniston Pipe and Foundry Co., Anniston, Ala	21.28	
McNeal Pipe and Foundry Co., Burlington, N. J	21.35	

Proposals for relaying floor of Aqueduct Bridge, opened October 14, 1893.

Bidder.	Amount.	Time for completion.	Remarks.
G. Cumberland, Washington, D. C	$1,170.00	60 days or less	Bid accepted.
C. R. Monroe, Washington, D. C	1,275.00	60 days	
G. B. M. Ricker, Washington, D. C	1,790.00	40 days	
W. A. Fry, Washington, D. C	1,474.00	45 days	
J. H. Hobson, Washington, D. C	2,100.00	37 days	
Wm. Rothwell, Washington, D. C	2,300.00	45 days	No deposit.
T. H. Unsworth, Washington, D. C	2,300.00	60 days	

Proposals for constructing superstructure of plate-girder bridge over James Creek Canal at N street SW., opened May 23, 1894.

Bidder.	Per pound.	Remarks.
	Cents.	
R. H. Hood, Washington, D. C	2.28	Bid accepted.
Nelson & Buchanan, Chambersburg, Pa	3	
Penn Bridge Co., Beaver Falls, Pa	2.58	
Berlin Bridge Co., East Berlin, Conn	2.90	
King Bridge Co., Cleveland, Ohio	2.80	
Shiffler Bridge Co., Pittsburg, Pa	2.45	
Youngstown Bridge Co., Youngstown, Ohio	2.36	
Toledo Bridge Co., Toledo, Ohio	2.70	

Proposals for furnishing seventy-five 6-inch two-way valves, opened January 12, 1894.

Bidder.	Price each.	Remarks.
Rensselaer Manufacturing Co., Troy, N. Y	$11.20	Bid accepted.
Eddy Valve Co., Waterford, N. Y	11.75	
Adams & Smith, New York City	12.40	

Proposals for furnishing street and fire hydrants.

Bidder.	Date of reception.	Fire hydrants, 6 inches each.		Street hydrants, each.	Remarks.
		Class A.	Class B.		
E. L. Dent, Washington, D. C	Aug. 5, 1893	$48.45	$52.45	$15.00	Bid accepted for street hydrants.
Stillwell Manufacturing Co., Philadelphia, Pa.	do	43.95	46.50	17.40	
A. H. Haig, Philadelphia, Pa	do	46.89	44.91	18.89	Bid accepted for Class B.
Michigan Brass and Iron Works, Detroit, Mich.	do	45.75 38.00	43.00 35.00		

Proposals for furnishing fire hydrants, opened January 20, 1894.

Bidder.	Price each.	Remarks.
A. A. Haig, Philadelphia, Pa	$43.48	Bid accepted.
Camden Iron Works, Camden, N. J	40.00 34.00	Without auxiliary valve.
E. L. Dent, Washington, D. C	44.95	
Howard Harrison Iron Works, Bessemer, Ala	37.75 40.00	4 feet. 5 feet; no deposit.
M. J. Drummond, New York City	40.00	

Proposals for furnishing special castings, 125,000 pounds, opened January 20, 1894.

Bidder.	Per pound.	Amount.	Remarks.
M. J. Drummond, New York City	$0.02 3/8	$2,734.37	
E. L. Dent, Washington, D. C	.02 1/4	2,656.25	
Builders' Iron Foundry, Providence, R. I	.01 92/100	2,400.00	
W. H. Marsh, Philadelphia, Pa	.01 89/100	2,362.50	Bid accepted.

Proposals for furnishing pumping engine and boilers, opened April 14, (5,000,000 gallons daily capacity).

	Price.	Days within which ready for trial.	Av d c sum of
The Holly Manufacturing Co., Lockport, N. Y.:			T
Babcock & Wilcox boilers	$44,000	180	
Campbell & Zell boilers	43,400	----	
National Water Tube Company's boilers	43,400	----	
J. A. Caldwell boilers	42,800	----	
The Sterling boilers	42,600	----	
The Heine safety boilers	44,800	----	
M. T. Davidson, Brooklyn, N. Y., triple expansion, with separating device for operating one or two engines	31,700	240	
Snow Steam Pump Works, Buffalo, N. Y.:			
Vertical triple expansion crank and fly-wheel engine	42,500	295	
Vertical triple expansion crank and fly-wheel engine, Campbell & Zell boilers	41,470	295	
Six cylinder compound duplex	36,000	230	
Six cylinder compound duplex, with Campbell & Zell boilers	33,176	230	
Horizontal cross compound crank and fly-wheel engine	38,600	265	
Horizontal cross compound crank and fly-wheel engine, Campbell & Zell boilers	36,880	265	
Barr Pumping Engine Co., Philadelphia, Pa., compound condensing duplex engine	38,900	200	
H. R. Worthington, New York City:			
Babcock & Wilcox boilers	39,200	183	
J. B. Root's safety boilers	40,000	----	
National Water Tube Co., boilers	38,500	----	
Campbell & Zell boilers	39,900	----	
The Geo. F. Blake Manufacturing Co., New York City, cross compound automatic Corliss	46,000	275	
Groshem High Duty Pumping Engine Co., New York City, Babcock & Wilcox boilers	34,750	150	
The Nordberg Manufacturing Co., Milwaukee, Wis:			
One Babcock & Wilcox boilers	31,000	175	
Campbell & Zell boilers*	29,600	----	----
The Sterling boiler	29,800	----	----
Heine boilers	31,300	----	----
Climax boilers	30,600	----	----
National, Root or Gill boilers	30,500	----	----
The Edmund B. Allis Co., Milwaukee, Wis:			
Campbell & Zell boilers	57,000	220	
Do	53,000	130	
Do	49,400	130	

* Bid accepted at $29,600.

Proposals for hauling for water department, opened June 30, 1894.

[Price per ton of 2,240 pounds.]

Bidder.	Washington and Georgetown.		Remark
	Within boundary lines.	Outside of boundary lines.	
G. W. Knox Express Co., Washington, D. C	$0.69	$0.90	
F. Springman, Washington, D. C	.69	.89	Bid accep
E. C. Gatchell, Washington, D. C	.699	1.25	

Proposals for furnishing 225 lamp-posts, opened April 12, 1894.

Bidder.	Price each.	Bidder.	
Radford Pipe and Foundry Co., Radford, Va.*	$6.00	W. H. March, Philadelphia, Pa	
Diven & Bros., Laurel, Md	6.50	Chas. White & Co., Washington, D. C.	
	8.50	Stewart R. Carr, Baltimore, Md	
M. J. Drummond, New York City	6.65	Addyston Pipe and Foundry Co., Cincinnati, Ohio	
C. L. Dent, Washington, D. C	6.65	Belmont Iron Works, Limited, Philadelphia, Pa	
City Foundry Co., Cleveland, Ohio	6.70	Geo. White & Son, Washington, D. C.	
R. H. Hood, Washington, D. C	6.98	J. T. Springman & Son, Washington, D. C	
Ross Mehan Brake Shoe Foundry Co., *Chattanooga*, Tenn	7.40		
Weimer Machine Works, Lebanon, Pa.	7.90		

* Bid accepted.

Proposals for furnishing 300 street lanterns, opened June 9, 1894.

Bidders.	Pattern A.	Pattern B.	Sample 1.	Sample 2.	Sample 3.
Pennsylvania Globe Gaslight Co., Philadelphia, Pa.*	$3.75	$4.50	.....	.....	.....
John L. Gaumer Co., Philadelphia, Pa	3.85	4.58	.....	.....	.....
The Wheeler Reflector and Light Co., Philadelphia, Pa	3.90	4.55	.....	.....	.....
H. I. Gregory, Washington, D. C	4.25	5.75	$3.75	$4.50	$6.50

* Bid accepted on Pattern B.

Proposals for street lighting, opened August 1, 1893.

[Price per lamp per annum.]

Bidders.	10-year contract.			5-year contract.			1-year contract.		
	6,000 lamps	3,000 lamps	500 lamps	6,000 lamps	3,000 lamps	500 lamps	6,000 lamps	3,000 lamps	500 lamps
Wheeler Reflector Light Co., Philadelphia, Pa.:									
Naphtha	.....	.....	$17.74	.....	.....	$18.37	.....	.....	$18.93
Oil	.....	.....	13.50	.....	.....	13.90	.....	.....	14.50
Nicolai Bros., Washington, D. C.:									
Oil	$13.60	$13.80	14.20	$13.60	$13.80	14.40	$14.40	$14.60	15.60
Sample A	13.60	14.00	14.60	13.80	14.20	14.80	14.60	15.00	15.90
Sample B	14.60	15.00	15.60	15.00	15.20	16.00	15.80	16.20	17.20
Gasoline	15.50	15.60	16.20	15.60	15.90	16.40	16.00	16.40	*17.00
Sample C	13.20	14.40	14.60	13.80	14.60	15.20	15.60	15.60	16.20

* Bid accepted August 24, 1894, from date of written contract to June 30, 1895.

Proposals for constructing sewers, opened August 5, 1893.

	Frank Murphy, Washington, D. C.	J. McCandlish, Washington, D. C.	Hussey & McLaughlin, Washington, D. C.	Geo. S. Good & Co., Philadelphia, Pa.*	M. F. Talty, Washington, D. C.	B. J. Coyle, Washington, D. C.	P. Brennan, Washington, D. C.	John E. Lyons, Washington, D. C.
5.25 feet brick ....per linear foot..	$12.99	$12.93	.....	$9.75	$12.68	$16.60	.....	$14.54
Manholes.....each..	25.00	37.00	.....	25.00	30.00	40.00	.....	39.00
3.75 by 5.625 feet brick, per linear foot.....	10.59 10.24	11.50 9.83	$11.00	7.50 7.75	11.88	10.80 11.20	$10.44	12.60 10.80
Manholes.....each..	25.00	40.00 33.00	25.00	25.00	30.00	45.00 40.00	40.00 33.00	30.00
3.5 by 5.25 feet brick, per linear foot.....	10.29 9.94	11.20 9.46	10.75 10.70	7.50 7.25	11.16	9.70 10.15	9.82 9.32	12.00 9.87
Manholes.....each..	25.00	40.00 32.00	25.00 25.00	25.00	30.00	45.00	40.00 33.00	30.00
3.25 by 4.875 feet brick, per linear foot.....	9.99 9.64	11.18 8.13	9.80 9.20	7.40 7.20	10.51	9.80 9.60	9.57 8.49	11.70 9.00
Manholes.....each..	25.00	40.00 31.00	25.00	25.00	30.00	48.00 25.00	40.00 33.00	30.00
3 by 4.5 feet brick, per linear foot..	9.69 9.34	9.80 7.86	9.00 8.45	7.20 7.15	9.74	9.30 8.07	8.68 7.79	11.10 8.07
Manholes.....each..	25.00	40.00 25.00	25.00	25.00	30.00	45.00	40.00 33.00	30.00

*Bid accepted.

Proposals for constructing sewers, opened March 10, 1894.

Bidders.	Section A.				Section B.	
	2.75-inch 3-ring brick (per linear foot).	Manholes (each).	2.75-inch 2-ring brick (per linear foot).	Manholes (each).	2 by 3-foot brick (per linear foot).	Manholes (each).
Geo. S. Good & Co., Philadelphia, Pa	$18.20	$1.00	$14.20	$1.00	$6.10	$1.0
M. F. Talty, Washington, D. C	13.40	35.00	12.40	35.00	4.90	25.0
Wm. Hussey, Washington, D. C.[4]	7.50	23.00	8.90	23.00	4.80	23.0
John E. Lyons, Washington, D. C.[5]					5.57	25.0
B. J. Coyle, Washington, D. C	15.90	25.00	14.60	40.00	5.95	25.0
J. McCandlish, Washington, D. C.[3]					4.66	18.0
Buckley & Larguey, Washington, D. C.[2]					4.95	14.0

Bidders.	Section C.			Section D.		Section E.	
	2.5 by 3.75 foot concrete (per linear foot).	2.5 by 3.75-inch brick (per linear foot).	Manholes (each).	6-foot brick (per linear foot).	Manholes (each).	21-inch pipe (per linear foot).	Manholes (each).
Geo. S. Good & Co., Philadelphia, Pa	$9.00	$9.90	$1.00	$12.40	$1.00		
M. F. Talty, Washington, D. C	7.10	7.30	30.00	9.50	30.00	$1.00	$25.0
Wm. Hussey, Washington, D. C.[4]	5.20	5.50	23.00	9.55	23.00	1.80	23.0
John E. Lyons, Washington, D. C.[5]	5.71	6.65	25.00	11.93	20.00	1.69	25.0
Langhorne & Allen, Washington, D. C.				13.48	30.00		
B. J. Coyle, Washington, D. C	6.10	7.45	35.00	11.75	25.00		
J. McCandlish, Washington, D. C.[3]	5.55	5.55	25.00	8.88	18.00	1.55	27.0
Buckley & Larguey, Washington, D. C.[2]	5.25	5.95	18.00	11.70	15.00	1.85	23.0
E. G. Gummel, Washington, D. C.[1]						1.63	28.0
Washington Asphalt Block and Tile Co., Washington, D. C						1.70	25.0

Bidders.	Section F.		Section G.				Section H.	
	24-inch pipe (per linear foot).	Manholes (each).	18-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).	18-inch pipe (per linear foot).	Manholes (each)
Wm. Hussey	$2.00	$23.00	$1.75	$23.00	$2.40	$23.00	$1.85	$23.00
John E. Lyons	1.81	25.00	1.45	25.00	2.30	25.00	1.75	25.00
J. McCandlish	1.88	27.00						
Buckley & Larguey	2.20	23.00	1.60	20.00	2.30	23.00	1.65	23.00
E. G. Gummel	1.84	28.00	1.68	28.00	1.84	28.00	1.73	28.00
Washington Asphalt Block and Tile Co	1.90	25.00	1.63	25.00	1.85	25.00	1.68	25.00

Bidders.	Section I.		Section K.		Section L.		Section M.	
	21-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).
Wm. Hussey	$1.80	$23.00	$2.00	$23.00	$2.20	$23.00	$2.40	$23.00
John E. Lyons	1.75	25.00			1.85	25.00		
J. McCandlish	1.66	26.00						
Buckley & Larguey	1.95	22.00	2.20	23.00	2.20	23.00		
E. G. Gummel	1.63	28.00	2.24	28.00	2.10	28.00	2.25	28.00
Washington Asphalt Block and Tile Co	1.70	25.00	2.50	25.00	2.50	25.00	2.40	25.00

[1] Bid accepted for sections I, M, N, R, V, and X.
[2] Bid accepted for sections O, P, Q, S, T, and W.
[3] Bid accepted for sections B, D, E, and U.
[4] Bid accepted for sections A, C, and K.
[5] Bid accepted for sections F, G, H, and L.

Proposals for constructing sewers, opened March 10, 1894—Continued.

Bidder.	Section N.		Section O.		Section P.		Section Q.		Section R.	
	24-inch pipe (per linear foot).	Manholes (each)	21-inch pipe (per linear foot).	Manholes (each)	21-inch pipe (per linear foot).	Manholes (each)	18-inch pipe (per linear foot).	Manholes (each)	15-inch pipe (per linear foot).	Manholes (each)
William Hussey	$2.10	$23.00	$2.00	$23.00	$2.10	$23.00	$1.80	$23.00	$1.30	$23.00
John E. Lyons	------	------	------	------	------	------	------	------	------	------
J. McCandlish	1.90	27.00	------	------	------	------	------	------	------	------
Buckley & Larguey	2.30	25.00	1.80	20.00	2.00	20.00	1.55	17.00	1.40	22.00
E. G. Gummel	1.85	28.00	1.92	28.00	2.30	28.00	1.68	28.00	1.25	28.00
Washington Asphalt Block and Tile Co.	2.25	25.00	1.85	25.00	1.90	25.00	2.05	25.00	1.35	25.00

Bidder.	Section S.		Section T.		Section U.			
	18-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).	24-inch pipe (per linear foot).	Manholes (each).	18-inch pipe (per linear foot).	Manholes (each).
William Hussey	$1.90	$23.00	$2.20	$23.00	$2.50	$25.00	$1.65	$23.00
John E. Lyons	------	------	2.20	------	------	------	------	------
J. McCandlish	------	------	------	------	2.20	18.00	1.25	27.00
Buckley & Larguey	1.60	20.00	2.10	20.00	2.30	17.00	1.70	21.00
E. G. Gummel	1.70	28.00	2.20	28.00	2.10	28.00	1.45	28.00
Washington Asphalt Block and Tile Co.	2.00	25.00	2.25	25.00	1.90	25.00	1.50	25.00

Bidder.	Section V.		Section W.				Section X.	
	12-inch pipe (per linear foot).	Manholes (each).	21-inch pipe (per linear foot).	Manholes (each).	18-inch pipe (per linear foot).	Manholes (each).	12-inch pipe (per linear foot).	Manholes (each).
Wm. Hussey	$1.55	$23.00	$1.98	$23.00	$1.98	$23.00	1.55	$23.00
Buckley & Larguey	1.20	20.00	1.80	20.00	1.60	20.00	1.15	20.00
E. G. Gummel	1.15	28.00	1.93	28.00	1.70	28.00	1.15	28.00
Washington Asphalt Block and Tile Co.	1.25	25.00	1.95	25.00	1.84	25.00	1.30	25.00

Proposals for constructing sewers, opened April 28, 1894.

Bidder.	Section A—Brick.				Section B—Brick.					
	2.25 by 3.375 feet, 4½ st., bet. Maine and Maryland aves.		2 by 3 feet, across 4½ st. and alley Reservation D.		3 by 4.5 feet, L, bet. 5th and 6th sts. NE.		2.75 by 3.125 feet, L, bet. 4th and 5th sts. NE.		2.25 by 3.375 feet, L, bet. 3d and 4th sts. NE.	
	Per linear foot.	Manholes, (each)	Per linear foot.	Manholes (each)	Per linear foot.	Manholes, (each)	Per linear foot.	Manholes (each)	Per linear foot.	Manholes (each)
M. F. Talty, Washington, D. C.	$7.50	$25.00	$6.90	$25.00	$7.10	$30.00	$6.40	$30.00	$5.50	$30.00
Breen & Feely, Alexandria, Va.	------	------	------	------	7.25	29.00	6.92	29.00	6.23	29.00
P. Brennan, Washington, D. C.	------	------	------	------	7.35	30.00	6.69	30.00	5.90	30.00
John E. Lyons, Washington, D.C.	5.13	25.00	4.98	25.00	6.45	25.00	5.98	25.00	5.75	25.00
Wm. Hussey and T. A. Brown, Washington, D. C.	5.20	15.00	4.60	15.00	7.75	25.00	6.75	25.00	6.20	25.00
Thos. R. McCann, Washington, D. C.	------	------	------	------	6.91	24.00	6.20	24.00	5.45	24.00
Geo. S. Good & Co., Philadelphia, Pa	7.00	20.00	6.70	20.00	7.00	25.00	6.25	25.00	6.00	25.00
B. J. Coyle, Washington, D. C.	4.85	15.00	4.50	15.00	6.30	30.00	5.75	30.00	4.80	30.00
Buckley & Larguey, Washington, D. C.	5.15	15.00	4.75	15.00	6.25	18.00	6.10	18.00	5.25	18.00
E. G. Gummel, Washington, D. C.	5.58	16.00	5.04	16.00	6.77	30.00	6.17	30.00	5.41	------
J. McCandlish, Washington, D. C.	4.83	15.00	4.75	15.00	6.96	25.00	6.45	25.00	6.00	25.00

Proposals for constructing sewers, opened April 28, 1894—Continued.

Bidder.	Section C—Concrete.				Section D—Concrete.					
	2.25 by 3.375 feet, 4½ st., bet. Maine and Maryland aves.		2 by 3 feet, across 4½ st. and in alley Reservation D.		3 by 4½ feet, L, bet. 5th and 6th sts. NE.		2.75 by 4.125 feet, L, bet. 4th and 5th sts. NE.		2.25 by 3.375 feet, L, bet. 3d and 4th sts. NE.	
	Per linear foot.	Manholes (each)	Per linear foot.	Manholes (each)	Per linear foot.	Manholes (each)	Per linear foot.	Manholes (each)	Per linear foot.	Manholes (each)
M. F. Talty, Washington, D. C.	$6.00	$25.00	$6.90	$25.00	$6.35	$30.00	$5.80	$30.00	$5.00	$30.00
P. Brennan, Washington, D. C.	.....	.....	.....	.....	6.80	30.00	6.17	30.00	5.40	30.00
Wm. Hussey and T. A. Brown, Washington, D. C.*	4.75	15.00	3.95	15.00	6.75	25.00	5.77	25.00	5.20	25.00
Geo. S. Good & Co., Philadelphia, Pa.	6.70	20.00	6.50	20.00	6.70	25.00	6.00	25.00	6.00	25.00
Buckley & Larguey, Washington, D. C.†	4.65	.....	4.25	15.00	6.15	23.00	5.60	23.00	4.75	23.00
E. G. Gummel, Washington, D. C.	.....	.....	.....	.....	6.36	30.00	5.72	30.00	4.98	30.00
J. McCandlish, Washington, D. C.	.....	.....	.....	.....	6.17	25.00	5.67	25.00	4.88	25.00
					‡5.67		‡5.27		‡4.47	

* Bid accepted, Section C. † Bid accepted, Section D. ‡ Special bid.

Proposals for construction of sewer through Government land between Girls' Reform School and Little Falls Branch, opened May 26, 1894.

Bidder.	8-inch pipe.	Manholes (5).	Remarks.
J. McCandlish, Washington, D. C.	$0.55	$15.00	Bid accepted.
E. G. Gummel, Washington, D. C.	.59	19.00	
T. R. McCann, Washington, D. C.	.65	15.00	
Wm. Harnedy, Washington, D. C.	.72	15.00	
M. McNamara, Washington, D. C.	.79	20.00	
J. E. Lyon, Washington, D. C.	.81	30.00	
P. Brennan, Washington, D. C.	.98	25.00	

Proposals for construction of flushing basins, opened May 26, 1894.

Bidder.	Price.	Remarks.
J. McCandlish, Washington, D. C.	$123.00	Bid accepted.
R. H. Lamb, Washington, D. C.	140.00	
E. G. Gummel, Washington, D. C.	149.00	
Wm. Rothwell, Washington, D. C.	193.54	

Proposals for constructing 21-inch pipe sewer on Ontario avenue between Superior avenue and Erie street, opened June 28, 1894.

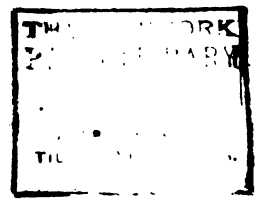
Bidder.	Per linear foot.	Remarks.
J. McCandlish, Washington, D. C.	$1.86	Bid accepted.
E. G. Gummel, Washington, D. C.	1.69	
Buckley & Larguey, Washington, D. C.	2.25	

Proposals for constructing 24-inch pipe sewer in alley Reservation D, opened June 28, 1894.

Bidder.	Per linear foot.	Remarks.
E. G. Gummel, Washington, D. C	$1.63	Bid accepted.
Buckley & Larguey, Washington, D. C	2.50	
Hussey & Brown, Washington, D. C	3.50	

Proposals for constructing 4-foot brick or concrete sewer on L, between North Capitol and First streets NE., opened June 28, 1894.

Bidder.	Brick.	Concrete.	Remarks.
J. McCandlish, Washington, D. C	$6.66	$5.97	
E. G. Gummel, Washington, D. C	7.83	7.41	
Buckley & Larguey, Washington, D. C	8.85	8.30	
Hussey & Brown, Washington, D. C	8.25	8.25	
M. F. Talty, Washington, D. C	6.00	6.00	Bid accepted for brick sewer.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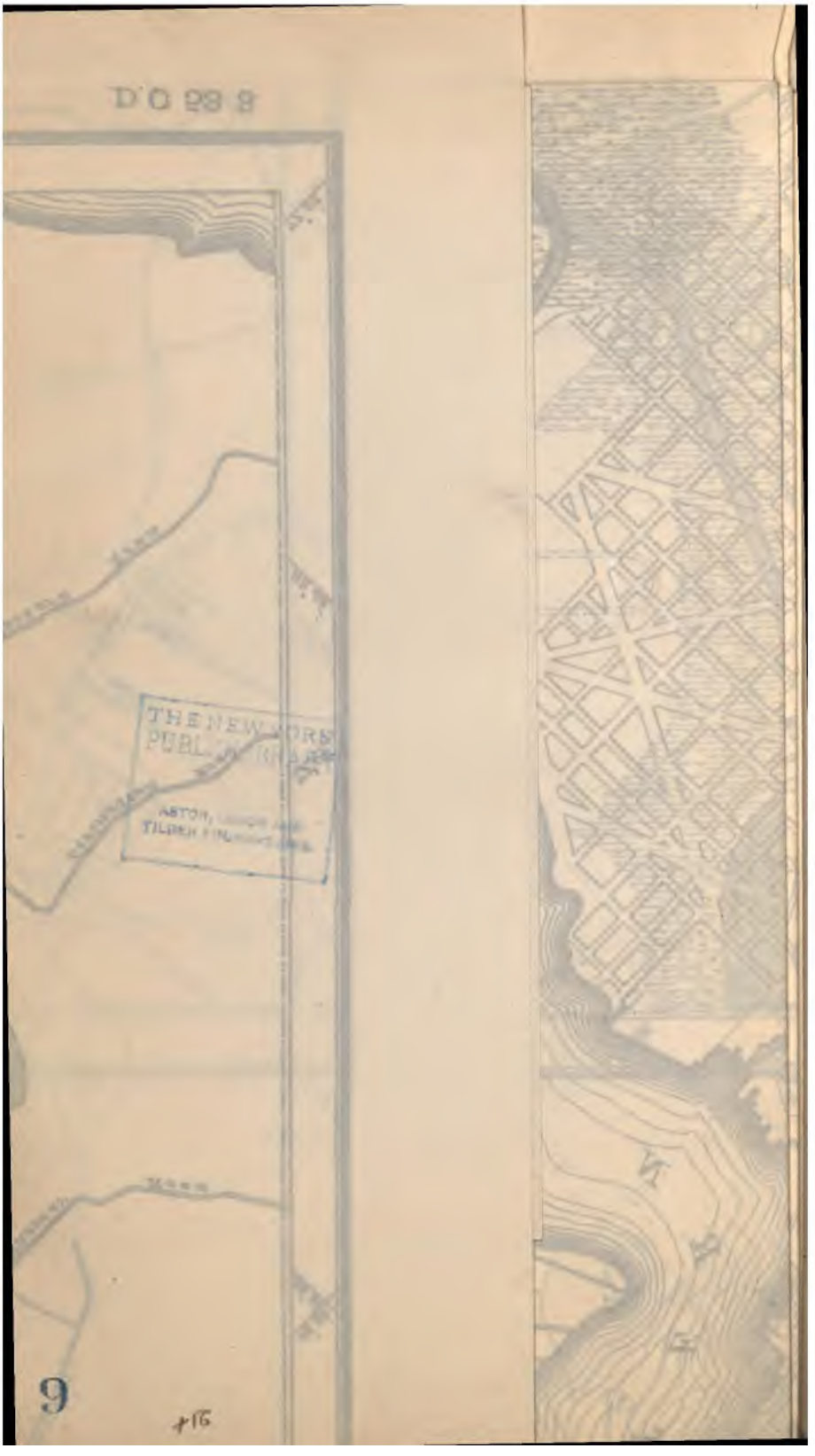
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